

Nation's Business

A MAGAZINE FOR BUSINESSMEN

FEBRUARY 1955

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ELECTRONICS MAKES LESS GOVERNMENT

page 38

EXCLUSIVE INTERVIEW

Labor board's new policies **PAGE 52**

44 million more Americans in 1975 **PAGE 36**

Panama Canal—half big enough **PAGE 72**

EXCLUSIVE INTERVIEW

Red rocket know-how matches ours **PAGE 34**



Volume control telephone enables user to increase listening volume by simply turning a button. Helpful for people with impaired hearing. Note spring cord, available for all sets at modest one-time charge.



Telephone with a light-up dial that is illuminated as soon as the handset is picked up. Perfect for dark or dimly lit rooms—such as bedroom, sickroom, television room.



Portable extension telephone plugs into telephone outlets wherever you occasionally need an additional telephone—guest room, dining room, sewing room.



Wall telephone comes in ivory or black. Because it takes up no work space, it's the ideal additional telephone for kitchen, workshop, rumpus room.

UPSTAIRS... DOWNSTAIRS... all around the house

These things made by Western Electric can add
to your satisfaction in using Bell telephone service

Shown here are just a few of the items now being made by Western Electric for your Bell telephone company. They're a sample of our continuing effort to make equipment that adds convenience and satisfaction in use of Bell telephone service.

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with Bell Laboratories people who design the equipment and Bell telephone people who operate it. It's Western's job in the Bell System to make the things that make good telephone service better. We've been at it for more than 73 years.

For information about availability and moderate charges, call or visit your Bell telephone business office.



This scene at our Indianapolis plant shows the testing of color telephones.

You can do all this with a

BUTLER steel building



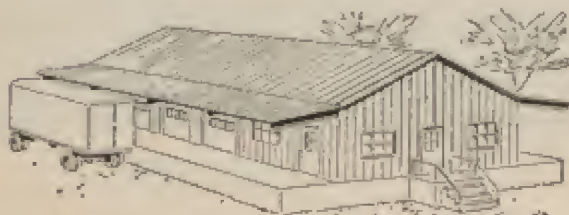
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Half-finished at the factory—with precision die-formed and punched cover panels—a Butler building goes up fast. It simply bolts together.



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Yes... move it, with 100% salvage of the original materials! Simply remove bolts, transport sections to new site, and re-assemble.



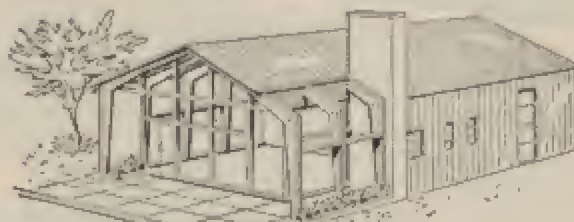
Modify it to any use—

Need an attractive store or dealership, loading dock, hoists or monorails? Your Butler dealer will plan and install what you need.



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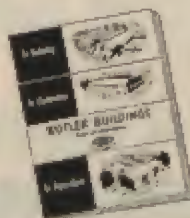
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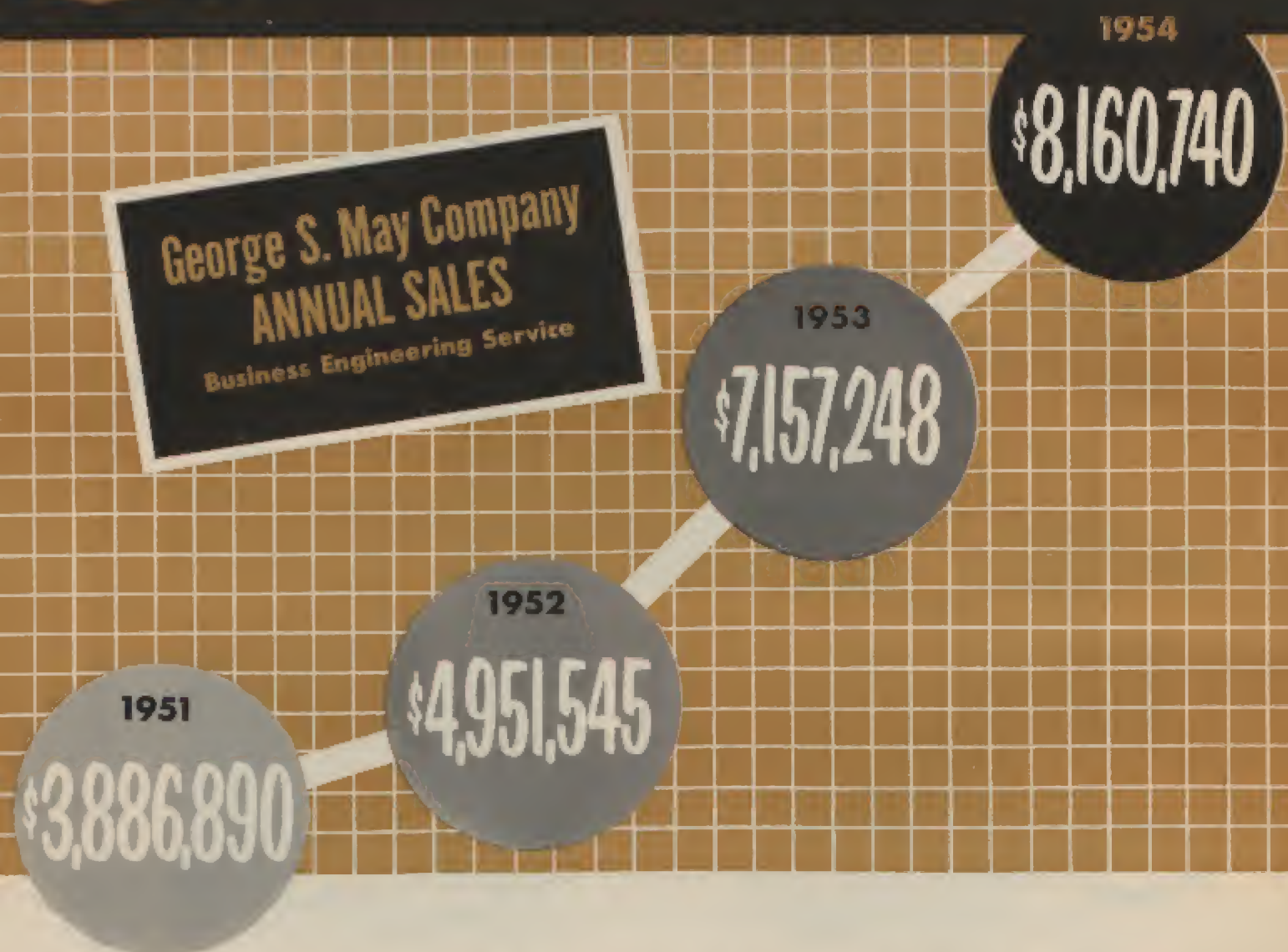


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G.E. HAS THE ANSWER TO AIR CONDITIONING PROBLEMS IN ANY OFFICE, STORE, OR FACTORY

General Electric Air Conditioning saves space and money for Southwest's first skyscraper



Texas Distributors, Inc., Dallas, G-E Distributors, who operate an Industrial and Commercial Contracting Department, made a complete climate survey of Amicable Life Building (above), then recommended the conversion of an old freight elevator shaft into equipment rooms on 19 floors, to house the specified G-E Packaged Air Conditioners.

The Amicable Life Building, Waco's familiar 22-story landmark (completed in 1911), was recently air conditioned from top to bottom. The job was completed with practically no inconvenience to the tenants, and at a minimum cost. To avoid expensive structural changes, a G-E climate survey recommended that General Electric Packaged Air Conditioners be placed in an unused elevator shaft. After the contract was signed, it took only a few short weeks to complete the installation, and then only 3 days were required to start, check out, balance and put the 36 G-E Units into perfect operation.

GET FREE SCIENTIFIC ANALYSIS by G-E trained experts of all the factors that determine the type of installation best suited to your space, including any special adaptations necessary for efficient, low-cost area or zone cooling.

NOW'S THE TIME TO SAVE MONEY! Prices are lowest now, and you can wait till May to begin payments. G-E dealers are able to make unhurried climate surveys during the next few weeks and install units any time you wish. Call your G-E dealer today, or write General Electric Co., Commercial & Industrial Air Conditioning Department, Bloomfield, New Jersey.

IT TAKES BOTH FOR EFFICIENT, LOW-COST AIR CONDITIONING



1 Thorough survey by G-E trained experts. Here Mr. L. Griffin, Manager, Contract Department, Texas Distributors, Inc., (on left), discusses floor plans with Mr. Louis Overton, Building Manager of Amicable Life Insurance Co.



2 The best in packaged air conditioners, 3-15 ton capacity • Easily directed airflow • Muggy Weather Control • Modern streamlined cabinets • New single unit refrigerating system, warranted for five years' service.

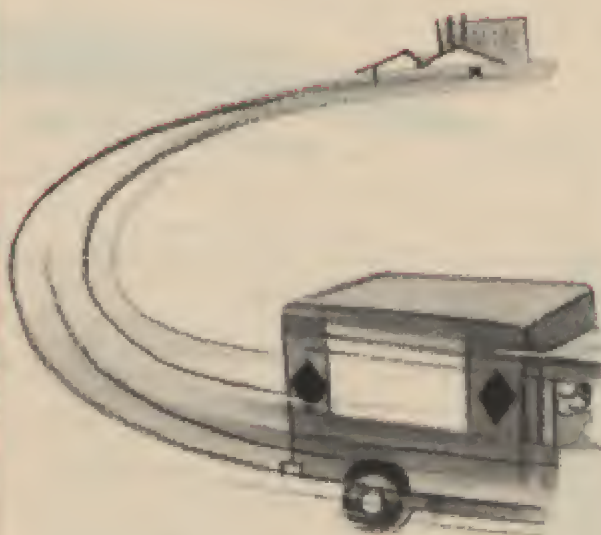
Packaged AIR CONDITIONERS

Progress Is Our Most Important Product

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*This company was on the run
To speed its goods to everyone . . .*



F. Caborn

*They found at last for safe, sure speed
RAILWAY EXPRESS is all they need!*

The big difference is

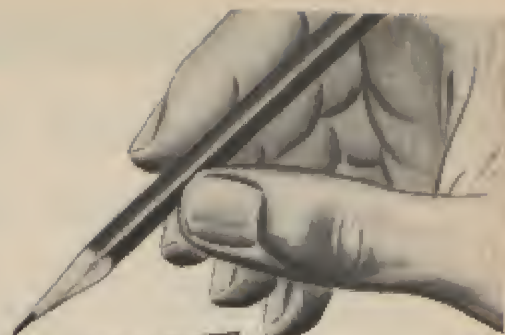
Whether you're sending or receiving,
whether your shipment is big or small,
and whether it's moving by rail or air—
you'll find it pays to specify
Railway Express. It makes the big difference
in speed, economy, and safe,
sure delivery. Railway Express is the
complete shipping service in the
American tradition of private enterprise.

As a contribution in the public interest,
RAILWAY EXPRESS will take your orders for CARE.



... safe, swift, sure

Can you spot the **BIG LOSER** on this scorecard?



★ TRANSPORTATION SCORECARD ★					
	RAILROADS	INTERCITY TRUCKS	INLAND WATERWAY CARRIERS	AIRLINES	INTERSTATE BUSES
Does carrier build and maintain the "roadway" which it uses?	YES	NO	NO	NO	NO
Does carrier pay property taxes on its "roadway" for support of the general services of government?	YES	NO	NO	NO	NO
Does carrier meet all its true costs instead of being helped by tax money?	YES	NO	NO	NO	NO
Is carrier compelled to maintain routes and services which do not pay their own way?	YES	NO	NO	SEE NOTE #1	NO
Are carrier's rates regulated by government agencies?	YES	SEE NOTE #2	SEE NOTE #3	YES	YES
<p>#1. Any mail-carrying commercial airline which operates at a loss receives additional Federal subsidy to cover its deficit.</p> <p>#2. Only 38% of intercity truck transportation is regulated, in part, by the Interstate Commerce Commission.</p> <p>#3. Only 12% of inland water transportation service is regulated to some extent. Water carriers enjoy special protection from railroad competition.</p>					

Look closely—it's YOU!

Most of the things you enjoy in your daily life — your home, your car, your clothes, the food you eat — are available to you in such quantity because America enjoys the world's greatest system of mass transportation. And the better that system works, the better for you.

But when that system is not permitted to work at its best, it is *your* loss.

As you can see from this scorecard, only the railroads among these transportation agencies are meeting all their true costs without help from tax money.

And yet, railroads are subject to such laws and regulations, both in their rates and in their services, that they are not allowed to compete with other forms of transportation on an equal basis.

This costs *you* money in two ways — in higher taxes and in higher *real* costs of transportation.

You can help get lower *real* costs — and lower taxes, too — by supporting measures, state and national, which will put all forms of transportation on an equal basis — and which will give America's railroads freedom to compete.



Association of American Railroads

WASHINGTON 6, D. C.

► HERE'S WHAT to expect of this session of Congress:

(Remember, strong opposition, political jockeying, timing factors all can produce upsets).

New highway construction program: There'll be debate on how much to spend, how to raise money, other phases.

But no legislation's likely until next session in '56.

Farm price supports: They'll stay flexible, but issue will be revived next year.

Debt limit: Will be raised on Administration request, probably to \$290,000,000,000.

Taxes: No major revision; 52 per cent corporate rate, excises will be kept.

Foreign trade: Three-year extension of Reciprocal Trade, power for President to chop tariffs 15 per cent.

Pay hikes: Will be OK'd for military, government workers, doubtful for congressmen.

Minimum wage: 90-cent floor, broader coverage, some businesses exempted.

Foreign aid: \$3,000,000,000 program will be approved for Far East, SEATO nations.

Defense, manpower budget: Will be OK'd after increases for Army appropriation.

Security-loyalty program: Debate but legislation doubtful until '56 session.

School construction: Congress will wait and see what state conferences come up with by year's end.

Public housing: Two-year, 35,000 unit program will get OK.

No legislation's expected on:

Taft-Hartley revision, Hawaii-Alaska statehood; 18-year-old vote; states' rights; Hoover reports; health reinsurance.

Chief investigation efforts will aim at:

Republican loyalty-security program; public vs. private power development.

In addition, Congress probably will:

Extend Defense Production Act; revamp Small Business Administration, Foreign Operations Administration; extend Veterans Administration home loan authority and Draft Act.

► TREASURY WANTS to divert some home-building money.

It's considering long-term bond issue, first since 3½ per cent, 30-year issue of May 1953.

Here's what prompts fresh look at bond market:

About \$70,000,000,000 in mortgages are outstanding now, increase of 54 per cent since '51.

Long-term issue would help shift available home loan money into government securities.

Business sees surge in activity.

That could prompt Federal Reserve Board to tighten bank credit, slow down on-the-cuff spending.

Idled bank cash then would go into bonds.

Note: Move could help Treasury refinance debt coming due in year or less.

That amounts to \$63,000,000,000, 40 per cent of marketable debt.

► UNCLE SAM'S till is tinkling merrily.

From now to end of fiscal '55 (June 30), Treasury receipts will top outlays by at least \$6,000,000,000.

But with 6-month deficit of \$8,500,000,000 to be made up, Treasury still will be short about \$2,500,000,000.

(Don't rely too much on budget estimates of deficit. They're often hiked to ward off tax-cut drives, make appropriations committees cost-conscious).

What deficit will mean:

Administration must ask for (and get) permanent debt limit boost to \$290,000,000,000, maybe more.

The reason:

Temporary \$6,000,000,000 increase OK'd by 83rd Congress expires June 30.

Deficit carryover into low revenue months of fiscal '56 (July to December) will reduce cash balance to zero, force new borrowing.

► HERE'S HOW business pickup could balance budget by '56:

Each \$4,000,000,000 rise in total output of goods, services, produces \$1,000,000,000 in tax revenues.

Budget can even show surplus at start of fiscal '57 (July 1, 1956) if:

Business climbs to '53 level, government outlays are cut or stay as is.

Total output, '53: \$365,000,000,000; '54: \$357,000,000,000.

Added tax revenue at '53 level:
\$2,000,000,000.

►WHAT HAVE we spent for armed forces in past 50 years?

Answer: \$586,112,000,000.

That includes two World Wars, Korea.
Breakdown:

Army: \$313,330,800,000.

Navy: \$176,249,300,000.

Air Force (since '49): \$59,531,900,-
000.

50-year expense is about a third of
U. S. production for past five years.

Production: \$1,682,300,000,000.

►BEHIND-SCENES counterattack shapes
up on guaranteed annual wage.

Industry will offer broader pension,
sick benefits, life insurance package.

Survey of 50 big city areas shows 71
per cent of office employees (mostly
nonunion) are covered by pensions.

Only 56 per cent of plant workers
(mostly union) are covered.

Plans are financed in whole or part
by employer.

Note: One major employer has his
workers queried privately at home.

Purpose: To find out what they want
in way of pensions, health and accident
plans.

Then he'll use their arguments in ne-
gotiations with union leaders this
spring.

►LESS THAN 50,000 of 400,000 U. S.
corporations pay 52 per cent corporate
rate.

But they pay 90 per cent of corporate
tax dollars Uncle Sam takes in--roughly
\$18,000,000,000.

Five per cent rate cut (to pre-Korea
47 per cent) would mean \$1,000,000,000
tax revenue loss.

But the \$1,000,000,000 invested in
private industry equals 77,000 jobs,
annual added wage income of nearly
\$280,000,000.

►SCHOOLS SPEND \$320,000,000 to trans-
port pupils.

That's \$2,000,000 a day for each
school day, adds up to 5 per cent of
total education budget this year.

More than 9,000,000 pupils will ride
school buses, a third of public school

population. Cost per pupil per day:
About 22 cents.

►U. S. IS BIG landowner--and getting
bigger.

In '54, government spent more than
\$60,000,000 for 600,000 acres, will
spend another \$150,000,000 for 1,500,-
000 more acres over next two years.

That's estimate of Lands Division in
Justice Department.

Division handles legal problems of
government land-buying programs.

Specific land uses are secret, but
Justice spokesman says more than half
new acreage will go for guided missile
and air bases.

Rest is for dams, reservoirs, reclama-
tion, national parks, other civil works.

►MILK PRODUCTION'S up--and so is milk
consumption.

Department of Agriculture estimates
that milk drinkers will catch up with
the cows in two years or less.

In '54, dairy farmers turned out
124,000,000,000 pounds of milk.

Of this, 118,500,000,000 pounds were
consumed.

That leaves 5,500,000,000 pounds
bought by government, a little more
than 4 per cent of production.

Average annual consumption growth:
1,500,000,000 pounds.

Average production growth: about
750,000,000 pounds.

►INDUSTRY SETS own dispersal pattern.

Pentagon, Office of Defense Mobiliza-
tion will announce new dispersal policy
this month.

But policy's based on moves already
made or planned by industry:

70 per cent of U. S. productive facil-
ities were concentrated in 50 most popu-
lous areas as late as two years ago.

Percentage is down to 60, will dip
again this year with further expansion.

Note: One industrialist points out
new plant construction follows popula-
tion shifts. That means new dispersal
problem for future.

Note, too: Fast tax write-offs to
build dispersed plants will fade.

►IT COSTS LESS to make money.

Bureau of the Mint says cost of mak-

washington letter

ing 1,000 pennies has dropped from \$1.56 in '46 to less than \$1 today.

Cost of 1,000 half-dollars in '46: \$8.25; today, about \$5.50.

Why the dip?

Bigger volume, better machinery.

► **KEEP YOUR EYE** on sales, inventory, new orders figures this month.

They point way for spring, summer business after first-of-year promotions are over.

Here are key figures:

Manufacturing, trade sales (annual rate at year's start): \$47,000,000,000.

That's midway between '53 peak, '54 dip.

Inventories: \$78,000,000,000, down \$4,000,000,000 from '53 peak.

New orders: \$24,000,000,000, highest since '51 and \$4,000,000,000 above January '54.

New figures will be out about middle of this month.

Quick comparison will show which way the wind's blowing.

► **HOOVER COMMISSION** task forces would ban most federal lending.

Group's final report isn't due until May 31, but here's advance look at some of recommendations:

Stop government guarantees on all FHA housing loans.

Liquidate Export-Import Bank, turn functions over to private banking system.

Discontinue advance payments made by Commodity Credit Corporation.

Let Small Business Administration die. Revoke lending power of Farmers Home Administration.

Put Rural Electrification under private financing.

Dissolve Housing and Home Finance Agency, but strengthen Home Loan Bank.

Limit lending power of Farm Credit Administration.

Tighten up Veterans Administration benefits.

These are a few bombshells. Others will burst this month.

► **INTERCITY TRAVEL** jumps 7 per cent annually.

That's more than 4½ times rate of population growth.

Interstate Commerce Commission started keeping figures in 1937, found then Americans traveled 268,000,000,000 passenger miles.

ICC estimate for '54: 590,000,000,000 passenger miles.

That's 117 per cent increase, compares with population growth, same period, of 24 per cent.

Autos account for 86 per cent of total, over 500,000,000,000 miles.

Note: Airlines, which bear 3 per cent of travel load now, score a 4,250 per cent increase in mileage since '37, boost share from 0.3 per cent.

► **RAILROADS** PUSH efficiency to meet competition.

Transportation output per train per hour is up 221 per cent since 1920.

Here's how it's done:

Number of cars to each train: up 77 per cent; tonnage in average car, up 10 per cent; train speed, up 77 per cent.

► **BRIEFS:** Payments by U. S. to veterans of all wars totals \$88,000,000,000; 74 per cent (\$65,880,000,000) has been paid since '38, \$23,010,000,000 before '38. . . . More older women enter labor market; their reason: to qualify for pensions under new Social Security laws. . . . 26 per cent of credit men in national survey view slow payers as problem in '55; 38 per cent thought '54 would be problem year. . . . Canned pork imports are up 19 per cent (largely from communist Poland) while low hog production, higher prices hit U. S. meat packers. . . . Trend to suburbs boosts participation sports, lifts sales sights of athletic goods makers by 10 per cent to \$148,500,000, not including guns, ammunition, fishing tackle. . . . Building footnote: Sales of ceramic tile will top \$80,000,000 this year, gain of \$5,000,000 over '54. . . . U. S. auto exports of 391,000 units equals 6 per cent of production, twice '53 figure; biggest customers: Mexico, Venezuela, Canada, in that order. . . . President's Feb. 15 message on aid to education will call for "immediate steps" to end school crisis; aim: to prevent problem from becoming political football next year.



when you ship M&D motor freight

Between the North and the South, your products move quickly, safely to market with M&D's modern motor transportation fleet.

Heated or refrigerated trailers to suit your needs . . . extra-capacity Volume Vans to reduce "handling" time . . . whatever your product or distribution problem, Mason and Dixon's last-minute equipment and modern facilities speed your service, gladden your customers, reduce your costs!

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Be worry-free—ship M&D!

Coming South?
For assistance in
locating suitable
sites, consult our
Industrial Division,
Kingsport,
Tennessee.



Letters TO THE EDITOR

No national list

I just finished reading the January 1955 *NATION'S BUSINESS* which I found to be, as usual, extremely interesting. The thought occurred to me while reading it: Is there any governmental or other publically available source that publishes or makes available lists of newly organized businesses?

JOSEPH MORSE
Indian Hill Road
Bedford, N. Y.

[Only sources are local and regional]

Textbook supplement

Ohio Scholarship Tests is a non-profit testing agency of the Ohio Department of Education. In this capacity we make available to all schools in the state, low-cost objective tests of one type or another. We should like to have permission to use quotations from the various comments made by Cabinet officers relative to the effectiveness of the Eisenhower Administration. (January issue)

We like to quote from various sources at times, as an indirect way of encouraging teachers to use wide and varied sources of material for classroom teaching. We feel that your publication is the type to which students should have access to supplement ordinary textbook reading.

CARL H. ROBERTS,
Ohio University
Athens, Ohio

E as in explain, please

There are three economists named Arthur Burns—Arthur F. of the Council of Economic Advisers, Arthur R. of Columbia, and Arthur E., the writer of this letter. Needless to say the situation gets a bit confused. *NATION'S BUSINESS*, however, seems bent on adding to the confusion by inventing an Arthur B., as author of my article on Commerce in the January issue. Is there anything *NATION'S BUSINESS* might do to allay any possible fear that still another economist named Arthur Burns has made his appearance?

ARTHUR E. BURNS
The George Washington University
Washington, D. C.

[We skipped and we apologize to Dr. Arthur E. We know of no B; only E, R and F.]

1.8 instead of 18 . . .

In the December issue of your magazine Felix Morley criticizes the Los Angeles City Schools. I quote: "A re-

cent survey in Los Angeles, for instance, revealed that 18 per cent of 11,000 high school juniors didn't know how many months there are in a year. And nine per cent of these juniors couldn't say how many three-cent stamps the post office will sell for three silver quarters."

Mr. Morley's arithmetic is incorrect—instead of 18 per cent, the figure is 1.8 per cent. We are still looking for the question on the purchase of three-cent stamps for three silver quarters. The nearest we can come to it is the question: "How many three-cent stamps can be purchased for 36 cents?"

JOHN A. GILLEAN,
Los Angeles City
Board of Education

. . . or is it 0.9?

In Mr. Morley's initial diatribe, he states "a recent survey in Los Angeles, for instance, revealed that 18 per cent of 11,000 high school juniors didn't know how many months there are in a year." An examination of the record of the testing in question indicates that actually 99.1 per cent of the pupils tested answered this question correctly.

MELVILLE J. HOMFELD,
Superintendent
Menlo Park Elementary
School District
Menlo Park, Calif.

It's 18

I first saw this figure of 18 per cent quoted in an Associated Press dispatch to the New York *Herald Tribune*, Nov. 29, 1951. Shortly afterward I received a newspaper clipping from the Los Angeles *Daily News* also dated Nov. 29 which stated that "18 per cent of the testees didn't know how many months there are in a year."

I wrote to Maurice G. Blair, associate superintendent in charge of curriculum and asked him three questions: Were the figures as reported correct? Did he feel that possibly some of the students were kidding because of the simplicity of the tests? Could I obtain copies of the tests? To this letter I received not a personal reply but a form letter which did not deny the accuracy of the figures but simply stated that "such deficiencies as became apparent from the testing are currently the subject of further study and action on the part of the Board of Education."

When I was in Los Angeles in 1953 I managed to obtain copies of these tests, but not from the school administration. On one occasion I quoted the test results, including the 18 per cent figure, to a member of the Board of Education without contradiction from him but with agreement that the tests



Are 9 to 5 business hours really adequate?

IF THE MAJOR responsibility for a business rests on your shoulders, you probably smile (a bit wryly) at the idea of being through by any 5 P.M.

Chances are, problems gang up and force you to put in more extra hours than you care to think about. So it's understandable if you haven't added to your burden by worrying about what would happen if the records you need to stay in business were destroyed in a sudden fire. After all, your building is fireproof. Your

records are in a big, safe-looking safe. And, anyway, what if they *were* burned? You'd get by. You'd collect on all that fire insurance!

Sounds logical. But it's based on dangerous assumptions, not these facts! A fireproof building with wall-in a fire, make it hotter. An old safe, or any safe without the Underwriters' label will very likely incinerate your records. And you won't collect that fire insurance fully, unless you provide "proof-of-loss within 60 days",

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uncovered glaring weaknesses. As I recall it now, all the Los Angeles papers at the time carried these figures, including the 18 per cent one, without contradiction from the authorities.

This incident illustrates the difficulties critics of public education encounter when we try to check information. The professionals are always reluctant to cooperate with us but delighted to holler "false" when we go ahead and use the material.

MORTIMER SMITH
Sandy Hook, Conn.

[Mr. Smith is the author of the book to which Mr. Morley referred in his column.]

A different meaning

I think you have some excellent points. Certainly there can be no excuse for schools not teaching the fundamental skills.

My conception of "director of learning" is just a little different than yours. I believe that a child who wants to learn needs more direction than actual teaching by the teacher. A child who does not want to learn is like a horse who does not want to drink. You can lead a child to study but you can't make him learn. This is not entirely true but it is true that a great deal more can be done in the way of education if the child wants to learn. Thus the teacher under such conditions would be a "director of learning" as well as a teacher.

A teacher then must do more than just teach. When a pupil cannot get interested in his work, methods need to be used to see that he does not just "float" along. Sometimes we need pressure to get action. The right kind applied in the right place at the right time can be beneficial. Educators call this motivation.

May I suggest that you not label all education because of some discrepancies. Public education needs men and women of high intelligence who are fully informed and who can act wisely. Public education needs a greater percentage of our gifted and talented youth to take teaching as a life's work. We need not only better teachers but more teachers.

WILLARD B. KNOWLES,
Superintendent
Martinez, Calif., Public Schools

Dear Mr. Duffus:

I am 12 years old. I go to school in Hood River, Ore., and I am in the eighth grade.

My Daddy showed me an article of yours in the December issue of NATION'S BUSINESS magazine. In the paragraph entitled "Lewis, Clark and Hollywood," you state that the present states of Washington and Oregon were parts of the Louisiana Purchase.

Our schools here in Oregon do not teach us that Oregon and Washington were parts of the Louisiana Purchase.

My Daddy enjoys reading your column very much.

JOANN ALDAHL
Hood River, Ore.

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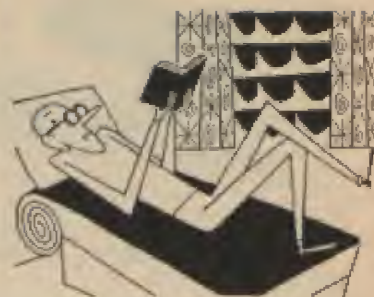
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BY MY WAY

R. S. Duffus



Book worm, man and boy

I STILL LIKE books—indeed, I couldn't live comfortably without them—but I don't like them as much as I did when I was a boy of about 12, with a lot of leisure time on my hands. I remember a whole magic winter morning spent reading Kipling's "Phantom Rickshaw." I knew nothing about life and love and sin, but the style or something—maybe the ghostly element—fascinated me. It snowed all that morning but I stayed indoors and didn't notice. Today I'd notice, all right.

More about February

ANOTHER good thing about February is that it is a sort of pause in the year. The Christmas presents have been given and received, and thanks exchanged; the good resolutions have, as a rule, been broken, and we don't even talk about them; and spring, though on the way, is too far off to plan for. February is restful. It makes me feel like hibernating.

Gimme that poker!

ARCHAEOLOGISTS have found a cave in South Africa confirming their belief that Stone Age men used



fire. Further research, I am sure, will confirm my belief that no two Stone Age individuals ever agreed as to just how to arrange the logs in a fireplace.

They've got something on me—maybe

I NEVER did anything very illegal, as far as I can remember, except when I stole those apples, and

we won't go into that—and, anyhow, the statute of limitations would get me off even if Mr. A. wanted to have me arrested for it, and he can't do that, because the dear, good man departed to, I hope, a better world many years ago. But I never apply for a passport or any other kind of official clearance without feeling a bit guilty. Maybe I did something wrong, and then forgot about it.

What's sleep to a squirrel?

WE MOVED into the city for a while during the dead of winter and before we went on our trip—and don't let me forget to tell everybody about that. One reason was that life in the country in the winter is lovely but sometimes difficult, up here in New England. The other was the squirrels kept waking me up by prancing around on the roof in the early morning—sometimes before eight o'clock. A squirrel is inconsiderate. In the city there is nothing to wake one up but traffic, including the garbage trucks, and radios.

Neighbors, in winter

IN WINTER, in our southern Connecticut town, we can see the lights of Main Street, the cars going over the State Street bridge, and several neighbors' houses not so visible when the leaves shut us in. We like it that way. When the weather grows ill-tempered (though beautiful) it's pleasant to have our neighbors in sight.

The two St. Valentines

I SUPPOSE St. Valentine would be surprised at the way his day is celebrated. Or rather, they would, for my Encyclopedia Britannica says there were two, both of whom died on the same day, in the reign of the Emperor Claudius, and both of whom were buried on the Via Flaminia, a high-speed chariot highway leading out of Rome. They were good and godly men, but the experts believe that their day is



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celebrated because it happens to come when spring is near (at least, in Rome) and young love wakes up. I don't think they would mind. Young love is a beautiful thing; it produces marriage and homes and children. And in these days even those of us who are no longer very young exchange gifts and show our fondness for those near and dear to us. Indeed, this is a sort of lesser Christmas Day.

Those college children

I HAVE been looking at some photographs of undergraduates in a college alumni magazine. They appear to me just barely mature enough to be allowed out without their nurses. On the other hand, when I was 21 and, so to speak, a



student in college, I felt older, and in some ways more mature, than before or since. I do not explain this—I merely mention it.

Goat milk for a poet

I ONCE got into trouble, in these pages, with the goat interests by some ill-informed remarks about their favorite quadruped. Now I note that Carl Sandburg, poet, historian and Lincoln biographer, raises goats on his North Carolina farm and drinks three glasses of goat milk a day. And I realize how wrong I was.

"Main Street" as it was

I HAVE BEEN reading an interesting book about small town life in the Middle West, and how it changed. ("Main Street on the Middle Border," by Lewis Ather-ton, Indiana University Press.) Some of its details recall the small town life I knew as a boy in Ver-mont, or heard about from older persons. Unless we put our minds on it, few of us, I am sure, realize that the whole way of living in this country has changed within the past generation or two. Time was when small-town folks had to depend on themselves for amusement—and they did. Were our ancestors bored? Are we less bored? I suppose the answer is that if you didn't know about automobiles, television, and airplanes—then you didn't miss anything.



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
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Trends

of Nation's Business



GEORGE LORA

THE STATE OF THE NATION

BY FELIX MORLEY

NO BUSINESS EXECUTIVE, with substantial company funds at his disposal, is any longer unaware of the well organized effort to tap these resources in behalf of higher education. Indeed these new financial pipelines, from counting house to campus, are being pushed about as rapidly as was Big Inch during the war.

There is nothing new, of course, in the assiduous cultivation of tycoons by college presidents. Both Harvard and Yale owe their very names to philanthropists of the colonial era. Businessmen with flexible checkbooks have always been in demand as college trustees. And many an honorary degree has been bestowed with the hope that its recipient would read *quid pro quo* into the rest of the Latin phrasing.

The current approach, however, is more direct and also more dignified. Throughout the country there is now a network of committees, state and regional, created for the specific purpose of diverting a portion of company profits to the support of the colleges. These committees are generally composed of businessmen and educators in equal number. They solicit not for one particular institution but for all those in the area that have agreed to divide the pool. And a national organization, in New York, gives guidance and encouragement to the whole extended effort.

• • •

The need is real. Whatever may be said for the economic stimulus of "controlled inflation," there

is no doubt that it spells disaster for institutions which must cover perennial operating deficits from endowment. Colleges cannot raise their fees to keep pace with rising living costs. They cannot cut expenses, since these for the most part are in faculty salaries already pitifully low. And even in the rare case where a college endowment is substantial, it cannot profit from a buoyant stock market. The finance committee has neither the legal nor the moral latitude to speculate with trust funds.

When inflation began to pinch, during the last war, the colleges developed organized alumni giving, as a regular annual contribution to the current expenses of Alma Mater. But since Korea this thin line of defense has in general proved wholly inadequate. Therefore the cooperative appeal to business was devised. Its potential was dramatized when Standard Oil of New Jersey recently distributed \$450,000 to a selected list of colleges and universities, emphasizing that the grants are wholly unrestricted.

General Electric, General Foods and other great corporations gave similar munificent gifts—they are of course tax deductible—in 1954. And smaller donations, from hundreds of firms, are now flowing in to the business and education committees. These, in turn, pass them on to the individual colleges according to the agreed percentages. It looks like the answer to the college president's prayer, but one must remember that something like a thousand of them are lining up on the receiving end. Even half a million dollars melts away

in the heat of this long division.

Organized industrial giving comes in the nick of time for most of the

colleges because their enrolment curve is now turning sharply up, as a result of the birth-rate increase that began in the late 30's. Since charges are rarely high enough to cover board and tuition, additional students point toward larger deficits. So campus administrators are eager to gather more luscious plums, like the Esso grant. And they are disturbed to find that the reception in some executive suites falls short of cordial. This is not wholly due to a proper reluctance to hand out stockholders' money on request. Some awkward questions about the nature of current instruction in the colleges are also being asked.

It is to be expected that responsible businessmen will make inquiry in cases where a college curriculum is clearly slanted toward the left, or where a socialistic professor habitually denounces the capitalist system. The funds which the executive is asked to disburse are not his personal property. And he would clearly violate his trust if he should subsidize a school which in effect teaches that government should further harass or expropriate private industry.

Therefore a certain pressure in behalf of the free enterprise system is being exerted on the colleges by the development of industrial giving. The college president must take it seriously if a prospective donor asks why his institution offers a course on social security, but none on the American Constitution. And even unrestricted gifts are unlikely to be diverted to the promotion of Marxist theory. Among the pink professors there is already some murmuring that this smacks of encroachment on "academic freedom." The verity of that phrase will have to be tested against the one which says that: "He who pays the piper, calls the tune."

The interest would be negative, if business merely asked that grants to education should not be used to undermine its foundations. Fortunately, the new liaison between business and education is bringing a much more positive form of long-range cooperation, to the benefit of both. This springs from the fact that the engineering, technical and administrative problems of American industry are now at least susceptible of solution. If a new formula is necessary to complete an industrial process, it is probable that the laboratories will in time provide it. If poor marketing methods or inefficient factory layout create obstacles, other forms of specialized research can be expected to clear the path.

But in problems of personnel, and in the relationship of a business to the community as a whole, there has been no such sure progress. And where

solutions will not come out of test tubes, or off drawing boards, mere technical efficiency sometimes seems more of a handicap than an asset. Executives trained in schools of engineering and commerce admit that they lack the broad humanitarian perspective necessary to envisage the problems of society as a whole. While specialization has been solving the internal difficulties of industry it has often unwittingly contributed to external difficulties.

One illustration of the point is the increasing death toll taken by mechanically perfected automobiles.

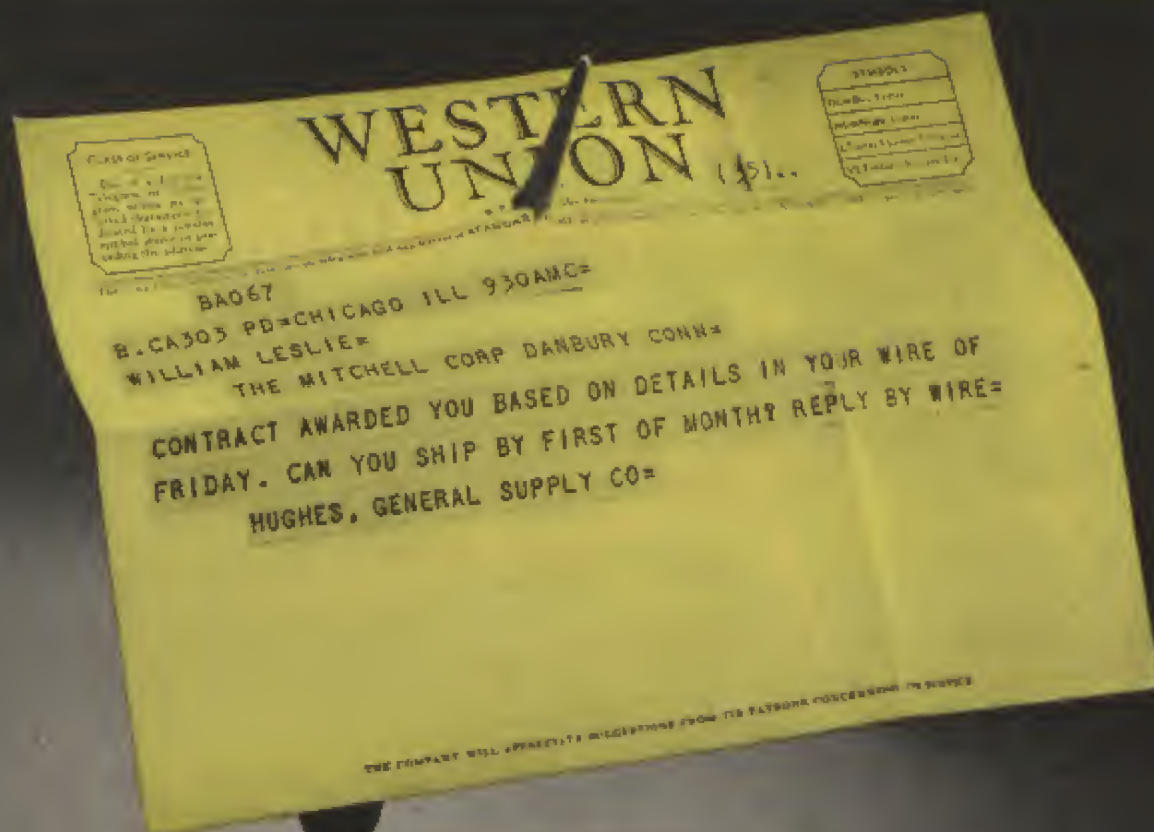
It is more than possible that the way out of this type of dilemma is to be found under the elms of the liberal arts colleges. Certainly industry could logically seek for the solution of nontechnical problems in those places where men and women have for generations been trained not vocationally, but primarily as responsible citizens.

A reasoned conviction that this may be the case has now led the Bell Telephone Company of Pennsylvania to develop a very interesting plan of cooperation with the University of Pennsylvania. The idea is that the company will send its junior executives, at the age of 40 or thereabouts, back to the university for a year. But they will not take technical courses. The year out, prior to promotion to top executive posts, will be dedicated to refresher courses in subjects like literature, history, philosophy and political theory.

Other great companies, like Sears Roebuck, are closely studying this cultural training program, and the idea is naturally arousing keen interest in academic circles. The traditional liberal arts curriculum will certainly need some revision if it is to be palatable to keen-minded adults who have been climbing the business ladder for a decade or more. But there is a precedent for this problem in that which the colleges solved successfully when they readmitted veterans with four or five years of war experience, often as highly responsible officers.

This proposed utilization of liberal arts colleges for the broad cultural training of junior executives is still in the planning stage. Much spade work is still to be done. The experiment, however, is sure to be stimulated by the business and education committees, now firmly established. Originated to raise funds for the colleges, these committees are inevitably becoming more concerned with the broader issue of how the financial connection may become one of lasting and mutual benefit.

The small colleges have collectively made a great contribution to the growth of American civilization. The same can be said of big business. And while the discovery that each institution needs the support and cooperation of the other is novel, it is not for that reason the less interesting both to the business and to the educational world.



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GEORGE LORIA

WASHINGTON MOOD

BY EDWARD T. FOLLIARD

A FAVORITE dream of politicians—especially of those whose party holds the White House—is of another “era of good feeling.”

Historians use this phrase to describe a period in the administration of President James Monroe. It evidently was a time of extraordinary harmony. The young republic was finally at peace, business was flourishing, and the future seemed bright. Partisanship had virtually disappeared. So well liked was Monroe that in 1820, when he ran for a second term, he carried all 24 states and received all the electoral votes but one—and that one was cast against him so that Washington alone might have the honor of unanimous election.

There are times now when an onlooker here begins to think that another era of good feeling may be with us. Then, upon reflection, he dismisses the idea. He comes to realize that there are too many differences boiling beneath the surface, too many ambitious men maneuvering behind the scenes, even to entertain the thought.

What we do have in Washington, though, is an era of good manners, politically speaking. The Democrats and Republicans are keen rivals, and their rivalry almost certainly will become intensified as we get nearer to 1956. However, a tourist would have had a hard time distinguishing between the two as he looked down in the House chamber on Jan. 6. First there was the storm of applause from both sides of the aisle as President Eisenhower strode in to deliver his State of the Union message. Then came another happy and affectionate outburst as the Chief Executive turned around to felicitate the distinguished Democrat who was presiding, Speaker Sam Rayburn. It was “Mr. Sam’s” seventy-third birthday.

Nobody expected this bubbling good will to last long. Still, it was something people wanted to cherish for the moment. It certainly must have impressed the diplomats who were in the chamber, including poker-faced Russian Ambassador Georgi N. Zaroubin.

Generally speaking, American politics has been a pretty brutal business over the years.

How long President Eisenhower can escape the savage criticism that was the lot of most his predecessors is anybody’s guess. His record in this

respect after two years is truly remarkable. So far he has fared even better than our two greatest Chief Executives. George Washington complained that he was treated like a common pickpocket, and Abraham Lincoln had to endure such epithets as “baboon” and worse.

• • •

Former President Truman experienced one period when he was the toast of the land. However, it lasted only six months, from the time he succeeded the fallen Roosevelt to mid-September, 1945. I was one of the reporters who traveled around the country with him at the time, and I had never before seen such manifestations of good will among both Democrats and Republicans.

That summer Mr. Truman’s popularity graph in the Gallup Poll reached its zenith of 87 per cent. It remains a record to this day, higher than the peaks reached by either President Roosevelt or President Eisenhower. There were several reasons for the Missourian’s soaring stock. For one thing, Germany had been defeated and Japan was on the way down. But most of all it was because of Mr. Truman himself.

People liked his modesty, his remark that when FDR died he felt like “the moon and all the stars and planets” had fallen on him. They liked the way he had grasped the helm, and they liked the friendly way he had treated Herbert Hoover and Alf Landon.

All this time there was a great misapprehension about Mr. Truman, one for which he was in no way to blame.

Newspaper commentators in those days speculated a good deal about his political orientation. Was he a “conservative,” a “liberal,” or a “middle-of-the-roader?” Usually people decided that he was what they wanted him to be, and this helped to swell his popularity.

Finally, in September, Mr. Truman sent a message asking Congress to enact a long list of proposed New Deal reforms. The message shocked many of his admirers, but it shouldn’t have. He had always been a New Dealer as a senator, and he was simply playing the game as he honestly felt it ought to be played—asking a Democratic

Congress to make good on the promises made in the 1944 Democratic platform.

Anyway, that was the beginning of the end of Mr. Truman's honeymoon. His ups and downs in the years that followed left him one of the most battle-scarred of all our Presidents. He rarely lost his good humor for long, however, and he took it for granted that the man in the White House was a natural target for political fire.

One day in early January, 1952, at a news conference, Mr. Truman was asked about the Eisenhower-for-President boom. He said he was fond of General Eisenhower, who was then assigned to NATO in Paris, and would not stand in his way if the General wanted to make a try for the White House. But he warned that if the famous soldier did get into the political arena he would have to brave "mud, rotten eggs and rotten tomatoes."

Well, it hasn't happened. At least, it hasn't happened on any sustained scale.

From time to time, there comes a blast at President Eisenhower which leads one to think that American politics is getting back to normal—that is to say, back to the tradition of the rough and tumble. So it was in New Orleans when Paul M. Butler, newly elected chairman of the Democratic National Committee, let fly at the soldier-statesman. Butler said that he lacked the capacity to govern and unite the American people—that it was becoming more apparent "that a military background is not a full and complete preparation for the Presidency."

No outstanding leaders of the Democratic Party followed Chairman Butler's lead. Not only that, but some Democrats in Congress, talking to reporters off the record, were critical of Butler. They thought he had shown a lack of political savvy. If President Eisenhower was to be criticized, they said, he ought to be criticized, not on the basis of his qualifications for the White House, but for his handling of specific issues.

What is the answer to this situation? Why is it that many Democrats still consider it politically dangerous to make an all-out attack on the President?

There are two answers, one having to do with an obvious fact and the other with a theory.

The fact is, of course, that General Eisenhower still is enormously popular, not only with Republicans but with a good many Democrats and so-called independents. Moreover, many of his admirers like to think that he is above politics. They continue to think of him as a hero who led an army of 3,000,000 to victory over the Germans in the West, a devout man, a man of prudence and integrity, who puts country before party.

Feeling thus, they are pained when professional politicians aim their shafts at him.

The theory has to do with the temper of the times. Those who hold it are convinced that the American people right now—many of them, at any rate—are antipolitical. They believe that this was so in 1952, and that it had much to do with the nomination of two men like General Eisenhower and Adlai Stevenson.

In short, they believe that in 1952 the people wanted a breather from political warfare.

• • •

Walter Lippmann, an acute observer of the American scene, has written at some length about this. He pointed out last year that, in 1952, the people had for 20 years "more than enough upheaval in their lives."

"By 1952," Lippmann wrote, "the time had come when more dynamism, more excitement and more frenzy, could only lead to catastrophe abroad and dissension at home. It had become imperative that this country collect itself, that it consolidate itself, that it restore its confidence, that it find a way to quiet its frayed nerves."

Mr. Lippmann's point was that General Eisenhower was elected to play a definite role, that of "restorer of order and peace after an age of violence and faction."

He contended that the President was out of character when he tried to play the role of a dynamic, progressive crusader, and he added:

"He has not done well as a crusader, as a dynamic politician, as a partisan, or as a factional manipulator and appeaser. Had the country needed, had the country wanted, that kind of President, then Dwight Eisenhower ought not to be in the White House. . . . But on the other hand, . . . the people do immediately rally to his support whenever, abroad or at home, he appears as the restorer of order and of peace."

The fact remains that General Eisenhower not only is President of the United States but leader of the Republican Party, and he takes this party leadership seriously.

He no longer refers to himself as a political novice. Far from being repelled by the game, he appears to be taking a growing interest in it, and seems to be getting more and more adept in its strategy and tactics.

The feeling has been growing that General Eisenhower will throw his hat in the ring in '56 and try for another term. However, when you try to get at the basis for this you get nowhere. The low-down on his intentions with respect to another term seems to be that there is no low-down.

About one thing there is no mystery. Mrs. Eisenhower wants her husband to quit after this term and settle down on their farm. That is not surprising. Nearly all First Ladies have wanted to get their men out of the White House.

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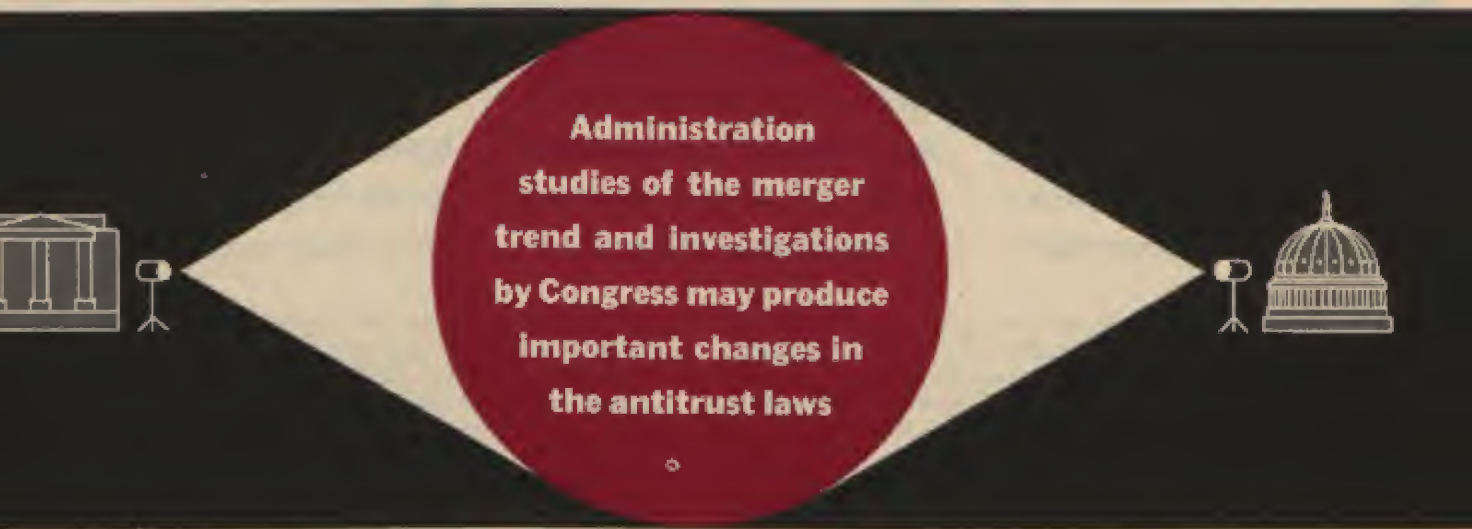
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NEW TRUST-BUSTING CYCLE BEGINS

By TRIS COFFIN



**Administration
studies of the merger
trend and investigations
by Congress may produce
important changes in
the antitrust laws**

A HUNT for monopoly will be launched from both ends of Constitution Avenue in Washington this year. The hubbub may even drown out the debates on foreign policy and the hue and cry over loyalty.

This emphasis on trust-busting was predicted some time ago when Attorney General Herbert Brownell, Jr., said his third year in office would stress antitrust work. To prove the point, his National Committee to Study Antitrust Laws will lay on the table a sweeping new look at monopoly problems in a matter of days. And, three blocks down the street, the Federal Trade Commission will release a monumental study of mergers.

Within the Justice Department, Stanley N. Barnes, head of the Antitrust Division, believes the time has come for the government to peer into the complex competitive field of auto manufacturing.

On Capitol Hill, the Democratic majority is sharpening its knives for a series of investigations of monopoly and government antitrust enforcement. Congressional committees will take a sharp look at the Securities and Exchange Commission, Atomic Energy Commission, Federal Trade Commission, Federal Power Commission, Interstate Commerce Commission, Federal Communications Commission and the Civil Aeronautics Board. They will study the effect of tax laws on mergers, and look for signs of monopoly in utilities, atomic energy, food processing, farm ma-

chinery, the stock and bond markets, communications, commercial aviation, and government contracts, among others.

So far, none of the investigating committees has seriously discussed the possible application of antitrust laws to labor unions.

Only the old-timers realize it, but one of the most powerful figures in Congress, Speaker Sam Rayburn, is himself a noted trust-buster. His campaign biography notes, "Mr. Rayburn was the first man in history to attack and break up the giant holding companies in New York, Chicago and Boston that were sucking the life blood out of the stockholders and charging unreasonable rates. . . ."

Speaker Rayburn, Mr. Brownell, Sen. Estes Kefauver of Tennessee, Dan T. Smith, economic adviser to the Secretary of the Treasury, and Chairman Edward F. Howrey of the FTC, agree on one point: This is the third great merger period of American history. The first was the era of the big trusts in the 1880's after the Civil War. The next great merger wave was in the late 1920's. The current one began in 1951. Statistics collected by the FTC show mergers increased from 200 in 1950 to 703 in 1951, 822 in 1952 and 793 in 1953.

But the two ends of Constitution Avenue disagree sharply on what all this means.

On Capitol Hill, such investigators as Sen. Joseph



TOP: EDWARD BURNS, BLACK STAR

Senator Kefauver says big issue right now is concentration of economic influence . . . unless checked, this will cause distress

C. O'Mahoney, chairman of the famous Temporary National Economic Committee of the '30's, and Senator Kefauver fear monopolies are growing so powerful that government cannot prevent them from crushing small businesses, throwing millions out of jobs, and causing inflation.

Administration officials, in general, are more relaxed. They find a good deal of evidence that this merger movement has no relation to the earlier ones. They believe that today's mergers are primarily between smaller companies to strengthen their competitive position and efficiency. Also, they feel that it is unfair to say that bigness, of itself, reduces competition and raises prices.

Why then is there such amazing interest in monopoly today?

There are four reasons.

First is a fear spreading to Washington from Main Street for the future of small business.

The Small Business Administration's second semi-annual report says soberly: "During recent months, it has become apparent that small business in important industries is not faring well. The merger movement today is due in part to steady deterioration of the financial position of small independent firms. Mergers in the textile industry, for example, have been promoted by inability of small companies to show a profit. . . . Inflation has raised tremendously the amount of money required to do business. Distribution and research costs today are so heavy that small firms have difficulty in keeping up with the race. Further, diversification has become epidemic in American industry. Large concerns are aggressively seeking to manufacture and market additional products so that there are few lines which are now the exclusive province of small firms."

The SBA also reported that since the end of the Korean war earnings after taxes of small business manufacturers have dropped sharply.

Attorney General Brownell feels control over business should be middle-of-the-road, aimed at eliminating bad practices

This situation has brought complaints to every congressman and murmurs of unrest to the national headquarters of both political parties.

Second reason for interest in business investigations is the amazing way the Dixon-Yates matter caught the public imagination. Hearings on Dixon-Yates were held by the Senate Antimonopoly Committee headed by the insurgent Republican, Sen. William Langer, of North Dakota.

Senator Kefauver, who will be chairman of the committee in the Democratic Congress, says the monopoly aspects of the Dixon-Yates contract were three-fold. He alleged the contract was obtained on a non-competitive basis, that Dixon-Yates created a giant holding company from two other holding companies, Middle South Utilities and Southern Companies, and that it was seeking to dominate the utility field in the Southeast by eliminating the TVA yardstick and competition from municipal utilities and rural co-ops.

The guiding, if not goading, spirit behind the Langer Committee is Sidney M. Davis, the committee counsel.

This 37-year-old lawyer is a protege of Justice Hugo Black, Judge Jerome Frank, Robert Hutchins and Thurman Arnold. After serving under these conspicuous liberals, Mr. Davis went to a New York law firm with a large corporate business and won a name as a brilliant trial lawyer.

It was his handling of witnesses that turned a dull and complex debate between private and public power advocates into an exciting melodrama.

Mr. Davis is by conviction and training a trust-buster and makes no bones about it. He said: "We have a double government; a political government and an invisible private government I would call an 'oligopoly,' that is, several corporations dominating a major field. Many of these corporations have grown beyond the size barrier. They are so colossal and



Speaker Rayburn led attack on giant holding companies which he felt were "sucking the life blood out of stockholders"

Antitrust Chief Barnes views bigness itself as immaterial, prefers settlements (like that with Eastman Kodak Company)

FTC Chairman Howrey says we need standards to find out when mergers are bad; says some of them improve competition

powerful the government cannot enforce its laws against them. Today, mergers in the 20 largest industries are going on at an amazing rate."

Third reason for interest in monopolies is politics. Congressional Democrats are frankly searching for a weapon to turn public attention away from the "20 years of treason" cry and to show a strong link between the Administration and "big business." The forthcoming investigations were discussed behind closed doors with Democratic National Chairman Stephen Mitchell and his successor, Paul Butler. The Democratic National Committee has one of the best files on monopoly outside the Justice Department. The Republican Administration, for its part, is out to show it has done a better job of trust-busting than previous Democratic Administrations. Both the Justice Department and FTC have figures that tend to show that they have followed a more vigorous policy against monopoly and unfair business practices than did the Truman Administration.

Fourth reason is the rotation of a cycle in history. This is an outgrowth of the traditional American dislike of absentee control whether it be from London, Wall Street, Washington or Moscow. Regularly, this dislike focuses public attack on radicals (the "wobblies," socialists, communists) and, when this begins to wear out, on big business. The last outcry against big business was in the late '20's, and early '30's and ushered in the New Deal. The Nye Committee investigation of munitions makers turned into a thunderous assault on business combines and gave an ambitious young man named Alger Hiss his start. At the same period, Representative Rayburn and Alabama's Senator Hugo Black investigated the utilities with Samuel Insull as the villain. The TNEC's long study of monopoly became a Government Printing Office best seller and is used in colleges today.

One of the barbed issues in today's debate is the Administration's antitrust enforcement policy. Sena-

tor O'Mahoney told NATION'S BUSINESS: "There is a danger that government agencies will take over legislative power and undermine Congress' own rules for antimonopoly. This was true in Dixon-Yates."

Attorney General Brownell gave this clue to his policy: "I am old-fashioned enough to believe that this control (over business) should be in keeping with a middle-of-the-road political philosophy, and aimed primarily at the elimination of predatory practices."

He drew up 11 points to be "considered and weighed" before the Government takes action against a merger or acquisition. They are:

1. The location, physical and financial size, past acquisitions, products and activities of the combining companies, individually and together;
2. Structure and size of the industry in terms of production and capacity;
3. Relative position of the two companies in the industry;
4. Ease of entry into the industry;
5. Number of companies in the industry together with their sizes and relative standing in sales and total assets;
6. Sales and like factors of the two companies and their competitors in definable market areas;
7. Whether the industry is infant, dynamic or on the wane;
8. Effect of the merger on sources of raw materials and distribution;
9. Whether the merger will reduce competition significantly;
10. Whether the acquisition will increase the size of the purchaser and give it a substantial advantage over its competitors, and
11. Whether relationships between the purchaser and other companies, as a result of the merger, will lessen competition;

Judge Barnes put the (Continued on page 68)

here's how to **TRAIN YOUR OWN INVENTORS**

By **RICHARD GEHMAN**



GUY BILLETTE—BRACKMAN ASSOCIATES

Any business can use the techniques General Electric has evolved to train creative thinkers

IF THE main objectives of American technology today are to advance our national standard of living and beat the communists, then it follows that our major need is new ideas, new inventions, new processes, new devices and new concepts. Development and advancement demand creativeness.

Until recently we have generally assumed that creativity was born in individuals. Today we know that quality can be not merely stimulated but actually taught.

One man, Alex F. Osborn, and one company, General Electric, already have demonstrated this. They have demonstrated further that any kind

of organization can adapt the basic principles of "applied imagination," as Mr. Osborn calls it, to its own needs.

A manufacturing empire like General Electric can use them, and so can a hardware store proprietor or a plumber. So can a life insurance company.

All that is really necessary is to show the individual citizen or the worker how to fulfill his dream of using his imagination for profit or satisfaction.

The fact is that amateur inventors and idea men are almost as numerous as Scrabble players. Alex F. Osborn is convinced that imagina-

tion is as much a part of man's mental equipment as memory, but most men need to be trained to use it properly.

There would be even more amateur inventors if ways in which the inventive attitude could be taught were widely used.

There are such ways, but they are not available through the existing educational system. Schools dispense facts, not wisdom. This characteristic of schools has put the question of teaching people to use their imaginations in new, productive channels up to industry. General Electric, with headquarters in Schenectady, N. Y., pioneered in



Roy C. Muir, then the company's chief engineer, held a number of conferences with his associates and with topnotch inventors, among them Chester Hall, who held more than 600 patents. As a result of their discussions, the company set up an advanced course in mechanical design which, in 1937, became the Creative Engineering Program under the direction of A. R. Stevenson, Jr. The purpose was to make engineers more productive, but design still was predominant in their thinking.

Some broader concept was needed, the directors felt. At the close of the second class's training, the objective was enlarged to include the entire chain of events leading from the first recognition of need for a device to do a certain job to conception of the device through its design, to manufacturing, and to delivery to the customer. This allowed the company to admit engineers who have interests in electronics.

In most simplified form the various subjects covered in the courses are these:

First the trainees are encouraged to develop an understanding of "engineering philosophy." This is done in two ways: by making them familiar with mechanics, electricity, magnetism, and materials, and by encouraging them to think about needs in new ways which at first may seem outrageous.

As the instructors see it, there are two ways to solve a problem: analysis and synthesis. The analytical approach—examining each aspect step-by-step—is taught in schools. This method rarely leads to creation. Synthesis may be defined as a solution that is based on hunch or intuition.

The courses encourage the students to give their "hunches" full play. To give their minds exercise, problems are thrown at them constantly. For example, one day an instructor may hold up a brick, or a tin can.

"How many different uses can you think up for these objects?" he will inquire.

A class may devise as many as 60 unconventional uses in a matter of 15 minutes.

After such exercises in general stimulation, the trainees go on to more specific problems. A research man from one section of the company may come in and say that the counting equipment used to run tests in his department is wearing out before the devices being tested. He needs a counter that will last, and the students will set to work to devise one. (This problem) was

accepting this challenge. A "School for Inventors" has been operating under the company's auspices for 17 years. The results have been astonishing to the layman and highly satisfactory to the company.

General Electric itself does not like to refer to its program as a School for Inventors, principally because the phrase is inexact.

"What we have done," a spokesman says, "is institute a creative program for men interested in design and engineering."

According to Charles Frank Hix, Jr., who became supervisor of the program in 1953, the present system of courses grew out of ideas devel-

oped between 1925 and 1935. At that time some General Electric engineers became convinced that the educational system, in and out of industry, was not producing the creative talent needed to keep our standard of living advancing at a desirable rate. Promising young men who came to work at GE were handed over to the older scientists and engineers to serve apprenticeships. This system worked well for some and poorly for others. Unquestionably many potential talents were lost for various reasons: personality conflicts, stimulation in wrong directions, lack of confidence in their own ideas, and so on.



Engineering student David Purdy, left, explains a point



in one of GE's no-ideas-barred sessions. Class over, he



checks radar tilt mechanism designed by other trainees

solved, by the way.) Or another department may need a device to make automatic the assembly operation on a thermostat. (This one was solved, too.)

The problems have been widely diversified but not all of them have dealt with devices useful only to the company. Consumer products have been perfected. A clock that resets itself and a mobile dishwasher are two items currently on the market which were devised by students.

The number of patents that have come out of the courses is remarkable. More than 335 men, ranging in age between 20 and 30, and averaging 24 or 25, have been trained. Over a ten-year period an average of 2.5 patents per trainee has been the result. Trainees are paid for their patents in shares of company stock.

Because the idea has worked so well for General Electric, many other companies have become interested. In the past two years more than 30 firms have sent observers to Schenectady. It is not inconceivable that before too long the "Inventors' School" may be as familiar a part of company organization as the research department.

One of the first questions observers ask is, "What text do you use?" General Electric has no set text; the courses are operated with a number of reference works. The exact principles of training for creation cannot be set down. But there is a book, "Applied Imagination: Principles and Procedures of Creative Thinking," which comes as close to being a text as a book can get.

Mr. Osborn, its author, is a 65-year-old college professor turned advertising man turned professor again. He was a cofounder of the advertising firm of Batten, Barton, Durstine and Osborn. All his life, he says, ideas and their creation have been his hobby.

Just about the time the General Electric program was getting underway in the early '40's, Mr. Osborn was becoming concerned over the fact that so few of his employees and associates were making the most of their creative power. He wrote two books, "Your Creative Power" and "Wake Up Your Mind." In the course of his research he learned that there was only one college-level program in creative thought—that offered by Robert Crawford at the University of Nebraska. Mr. Osborn reasoned that there would be more courses if there were a guide. He therefore wrote "Applied Imagination"—and began putting its tenets into practice.

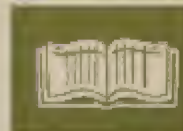
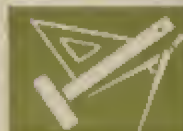
Creative thought can be de-
(Continued on page 100)

HOW LEASE-PURCHASE WORKS



Typical of structures to be erected under lease-purchase are, above, U. S. Court House, Nashville, Tenn., and, below, Bureau of Standards office, Boulder, Colo. These were built under old system.

- ◀ **LEASE-PURCHASE** projects will be developed by General Services, Post Office, screened by Budget, OK'd by Congress.
- ◀ **PRIVATE LOCAL** architects and engineers on nearly all projects will be responsible for building design, engineering.
- ◀ **PRIVATE BUILDERS** will erect buildings with construction financed by banks, insurance companies, other investors.
- ◀ **LOCAL TAXES** will continue to be paid on the buildings as private property until the government has paid off mortgage.
- ◀ **GOVERNMENT** will make regular payments on principal plus interest—just like a home buyer—during life of contract.



The 35 proposed projects are only a tiny part of the federal building backlog of more than 5,000 projects with a total estimated cost of about \$2,000,000,000. But the program is still experimental; Administration officials admit they consider it only the beginning. They plan to seek a sizable increase next year and the years after that. Even the \$80,000,000 construction limit imposed for the current year, however, would mean close to a quarter of a billion dollars' worth of new construction if extended over the remaining two years of the program.

Moreover, should there be a sudden and urgent need for large-scale federal pump-priming, the program could swiftly be stepped up to truly massive proportions by Congress and the Administration.

Public Buildings Commissioner Peter A. Strobel has worked out a seven-step outline of how lease-purchase works:

1. GSA and the Post Office Department develop projects based on their "urgent, permanent space requirements." The government's temporary space needs still will be rented, and long-range requirements not considered urgent will await congressional appropriations for government construction.

2. Projects selected for lease-purchase are screened by the Bureau of the Budget and then sent to the Senate and House Committees on Public Works, which must approve before contracts can be let.

3. Though some existing buildings may be ac-

quired under lease-purchase, the intent is to concentrate on construction of new buildings. Plans are drawn in nearly all cases by private architects and engineers located in the areas where the projects are to be built.

4. Bids are invited on construction and on financing under lease-purchase contracts of from ten to 25 years. The government is still trying to work out just how the bidding on these two elements of a project—the construction and the financing—is to be synchronized.

5. Construction is on government-owned land and under government supervision.

6. As soon as construction is completed, the government occupies the building and immediately begins making its regular instalment payments. These include reimbursement to the owner for taxes, insurance and other related charges. The government also takes over the operation and maintenance of the building.

7. At the end of the lease-purchase period, the government takes full title to the building. Until then, it is considered private property and remains on local tax rolls. After the government takes title, however, state and local taxes can no longer be assessed.

The lease-purchase program did not get through Congress without a struggle, and the promised attempt to expand it will likely have rough going on Capitol Hill.

(Continued on page 99)



RED ROCKET KNOW-HOW MATCHES OURS

The United States is making progress in the field of rocket propulsion but badly needs additional engineers and scientists, says **Dr. Richard W. Porter**, new president of the American Rocket Society and general manager of the General Electric Company's guided missiles division, in this exclusive interview

We hear a lot about military rockets. Are we really making progress?

The United States has made great advances in the field of rocket propulsion in the past decade. Whether these advances have been sufficient from the military point of view remains to be seen. I believe current progress is remarkably good in view of the money being spent.

In what areas, if any, do we lag?

It appears to me that, in the past at least, we have failed to do the thorough job of qualification testing on rocket engines that we have found necessary on other types of engines. I believe this is being remedied rapidly. Reliability is our most important problem today.

What has rocket and guided missile development cost this nation?

It is not possible for me to give you an accurate figure on the basis of the unclassified data to which I have access.

[Editor's Note: Last Dec. 1 Maj. Gen. L. E. Simon, chief of research and development in the office of the Army Chief of Ordnance told a New York meeting of the American Ordnance Association that this country's guided missiles program "has cost in the order of a billion dollars and ten years' effort and is just hitting its stride in producing concrete results."]

Is the Soviet Union making more rapid progress than the United States in the development of rockets and guided missiles?

I certainly hope not! However, in the absence of precise information, I believe we should assume their progress to be at least comparable with ours.

Does the evidence indicate that the Russians now have long-distance rockets capable of delivering nuclear warheads?

The Soviet Union has resources which make it technologically capable of developing intercontinental rocket-propelled missiles with reasonable rapidity. Of course, Russia's potential capability in the field

of nuclear weapons is well known. Whether the Soviet has such weapon systems ready for use, I do not know.

Do you believe that the United States government should spur plans to develop and launch a space satellite?

I believe that the United States should develop and launch an unmanned satellite vehicle for scientific purposes as soon as practicable without interfering with the development and manufacture of urgently needed weapons for our national defense.

What would be the value and purpose of such a vehicle?

One purpose would be to conduct scientific experiments of the same general nature as have been conducted on V-2's, Vikings, Aerobees, and other high altitude vehicles, but requiring greater time and higher altitudes. Another purpose would be to find out whether such a vehicle could accomplish any commercially useful tasks in a practical, economic manner. The American Rocket Society has recently proposed that the National Science Foundation should explore in some detail the possible uses of such a vehicle, in order that a firm base may be established for specifying size and weight of payload and other important considerations.

I sincerely hope the Foundation will have public support in obtaining from Congress the rather modest funds needed for this work. The cost to develop and fly an unmanned satellite vehicle can be estimated at anything from a few million dollars to a few hundred million dollars depending on the required payload, accuracy of orbit, altitude, date of accomplishment and so on, and on the possibility of using military developments and possibly even military hardware.

How would the space satellite operate?

The space station or unmanned satellite would revolve around the earth at a speed such that its centrifugal force would be just equal to

the pull of gravity. If it were at least 300 or 400 miles above the earth's surface, atmospheric drag would be negligible so the vehicle, once established in this orbit, would continue to circle almost indefinitely without additional propulsion.

What are the problems to be surmounted?

The principal problems are of an engineering nature, involving the design of large rocket engines, lightweight structures and tanks, means of progressively dropping off tanks and rocket engines as the fuel is expended, providing adequate guidance and communication within very small space and weight limitations, and, of course, making sure that all of the parts have nearly perfect reliability.

Do we have any way of knowing whether the Russians have already launched a space station of this kind?

The Soviets would presumably use some form of radio communication with a satellite vehicle if they were to launch one. I suppose we could listen in and at least detect its presence in this way. High-power telescopes, oriented in the right way at the right time of day could also possibly detect such a vehicle. Certain types of radar might even be able to track a close-in satellite.

How many bases in the United States are engaged in rocket and guided missile work?

The government operates four major proving grounds. In addition, there are several government laboratories and arsenals, several non-profit laboratories operated for the government by educational institutions, and many industrial organizations, covering most of the aircraft, automotive, and electrical industries.

How many ex-Nazi rocket scientists are helping us?

I know of several hundred German nationals who have come to this country since the war who are
(Continued on page 78)



44 million more

THE more than 4,000,000 babies to be born in the United States this year will celebrate their twentieth birthdays in a country with 44,000,000 more people than there are now.

By 1975 this year's baby crop should know the answers to questions being asked by today's economists—questions like this: What will this tremendous population surge mean to our school system, to our labor force, our armed services, our construction industry and our constantly changing consumer markets?

Here's what today's economists have to go on:

The Census Bureau recently published forecasts showing population to 1975 under various assumptions of fertility. Estimating population aged 20 and over in 1975 is not too difficult. Mortality rates and their trends are known and can be projected with reasonable accuracy barring epidemics or catastrophe. Estimating future births, however, is risky. In 1915, there were 30 births per 1,000 total population. This ratio declined steadily, reaching 18 in 1933 and remaining at this level during the 30's. The rate rose to 20 per 1,000 in 1941 and has leveled off at about 25 births per 1,000 since 1946.

If the birth rate remains at 25 there will be some 5,500,000 births in 1975 and a total population of about 220,000,000. If the rate drops back to 17 the 1975 births will number 3,400,000 and total population will be about 200,000,000. Assuming a medium estimate with perhaps 3,600,000 births in 1975, our population will be about 207,000,000.

This increase of 44,000,000 is more than the present combined population of New York, New Jersey, Pennsylvania, Maryland, the District of Columbia, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire and Maine.

Elementary schools are for the most part jammed to capacity. In 1940 there were 22,000,000 children



Our country's population is zooming upward, providing not only a larger market, but one accustomed to ever higher standards of living

aged five through 14. This age group is expected to number 36,000,000 by 1960 and remain at that level through 1975.

Young people 15 through 19 numbered 12,300,000 in 1940 and will increase to 13,400,000 in 1960 and 17,600,000 in 1975, indicating that high school enrolment, now at about 8,000,000, will rise to 9,000,000 in 1960 and about 12,000,000 in 1975.

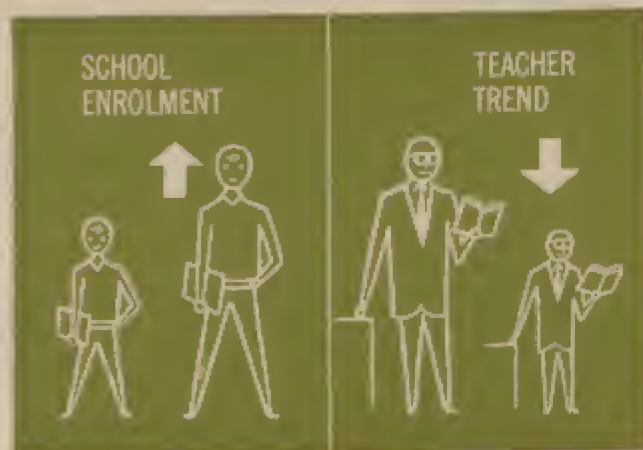
Current college enrolment totals about 2,500,000, slightly more than 25 per cent of the 9,000,000 young people of college age. By 1975 there will be more than 15,000,000 college-age youth, and the proportion attending college is likely to increase because of greater demand for college graduates by business and industry, rising income levels and a larger proportion of college-trained parents.

Building more classrooms is a relatively minor part of this growing problem. Schools can be constructed in two years or less; ample building materials are available. But it takes four years to train an elementary or high school teacher and seven or eight years to train a college professor. Last year 45,000 college students completed requirements for elementary school teaching, a seven per cent drop from 1953. In 1940, college graduates prepared to teach in high schools totaled 87,000.

Within four years the figure had dropped to 51,000, down 41 per cent.

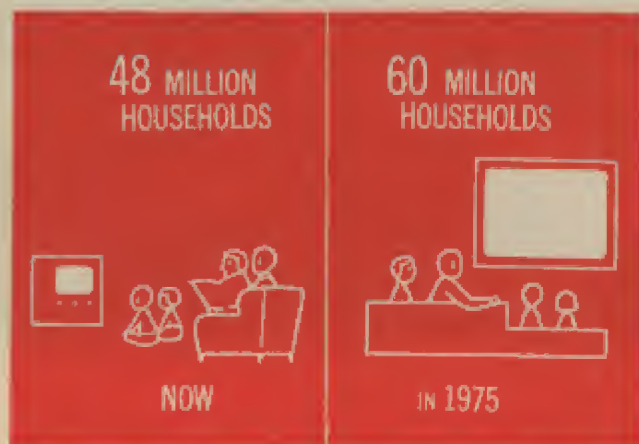
Military manpower, the nation's labor force, its agriculture, construction and consumer goods industries likewise face similar and equally challenging problems as a result of increasing numbers of people.

With partial mobilization, military manpower depends largely on 19-year-olds for replacements as enlistments expire. This year slightly more than 1,000,000 young men will reach 19; in 1960 they will number about 1,200,000, in 1965 about 1,500,000 and in 1975 almost 2,000,000. During World War II 19-year-olds averaged about 1,200,000 each year, a level



School enrolment—as a result of huge baby crops—will make substantial gains. Proportionate number of teachers will show decline

Americans in 1975



Formation of new households, which means big new markets for homes, food, durable goods, is expected to gain at least 25% in the next 20 years

which will be exceeded by 50 per cent 20 years from now.

With full mobilization, military demands are met chiefly from the 19 to 29 age group, which now totals slightly more than 12,000,000 and is expected to increase to 20,000,000 by 1975—also 50 per cent above the World War II level.

Our 1975 labor force, too, depends upon a multitude of varying factors. The population aged 25 to 64 is expected to increase more slowly than total population—which will make increased productivity necessary to maintain or improve our standard of living. The expected growth in college enrolment means, in turn, fewer young people in the labor force, while increasing financial independence will remove many older persons as well. Any increase in military mobilization likewise will directly affect the labor force. To take up some of the gap between productivity and population, it's expected that more women are likely to enter the labor force than now work.

In 1954, 6,500,000 persons were employed in agriculture, each producing food and fiber for 25 additional persons in the population. If agricultural employment remains at that figure, each farmer must produce enough for 32 persons by 1975. If farm employment continues to decline, as it has for the past two decades, perhaps reaching a mere 5,000,000 by 1975, each farmer then must produce for 40 persons. With a dwindling supply of land, these goals can be met only by vastly increased mechanization and more intensive application of agricultural science, which, in turn, means a stepped-up capital investment program for agriculture.

We now have 48,000,000 households in the United States. These will increase to 52,000,000 by 1960 and to 60,000,000 by 1975—an increase in family formation which will require at least 500,000 new houses each year. With replacement of obsolete homes, the

record 1,400,000 starts in 1950 may become commonplace. Evidence piles up, too, that the average family is becoming larger and that many two-bedroom post-war homes are becoming too small for the average family.

In other construction areas, technological advances will require new and costlier factories with increased per-worker investment.

Plans for a multibillion dollar highway renovation program just scratch the surface of future construction activity, which embraces billions of dollars' worth of buildings for education, hospitals, public utilities—if the needs of 1975 are, at least partially, to be met in advance.

The manufacturing pattern of consumer goods industries unquestionably will be affected by the increased number of people aged 65 and over, who will have greatly improved incomes deriving from increased social security coverage and more liberal pension programs. These oldsters will comprise ten per cent of the population in 1975. At the other end of the scale, there is no doubt that the continued baby boom likewise will have a profound influence on the consumer goods pattern. More households and growing replacement markets will be reflected in increased activity in automobile, durable goods, television and other consumer industrial production.

Back of all this, too, research departments of industries large and small are busy creating new products, new methods of production, and new and improved services.

Not only will today's production facilities be called upon to expand, but entire new industries will spring up within the next few years.

These are some of the challenging problems this year's babies will face—when 44,000,000 more Americans are clamoring for goods and services and a still higher standard of living in 1975.—FRED D. LINDSEY



Farmers face big production problems in years ahead. With more mouths to feed and fewer farm workers, output must be nearly doubled by 1975

ELECTRONICS PROMISE:



GEORGE LOHR

Better government for less cost

Giant computers already have speeded up such government jobs as bid selection and the tabulation of Census data. Tomorrow's electronic machines will do much more: streamline the Patent Office, process postal money orders, even forecast the weather

By JERRY and ELECTA T. KLUTTZ

THE ELECTRONIC scientist has taken aim at the federal government. He is convinced that he can reverse its natural disposition to grow in size and cost, and at the same time make it more efficient.

Electronics is approaching this formidable task from various directions—improving weather forecasting for the Weather Bureau, helping the Forest Service keep track of timber resources, storing Air Force secrets—but one of the major objectives is to get government paper work and records down to manageable size. A quick glance shows the need for such a program:

- 1. Approximately 800,000 of the 2,300,000 federal employes create and maintain records at a cost of about \$4,000,000,000 annually.
- 2. The government now has enough records to fill seven and one-half buildings the size of the Pentagon.
- 3. Enough new records will be created this year to fill another Pentagon.

This is a formidable challenge but the electronic



In the past, using conventional accounting and sorting machines, Census Bureau's monthly current population survey, which yields unemployment figures indicative of business trend, took 21 to 24 days to tabulate. Now UNIVAC (opposite page) makes the figures available sooner, and cuts the cost in half

scientist already has demonstrated that he can conquer certain phases of the paper work problem.

Best example of his success is in the Census Bureau. This Commerce Department agency pioneered in the adaptation of the electronic computer to master gigantic paper work operations. Census collects facts of all kinds. Literally millions of reports are gathered and must be tabulated. Hundreds of clerks formerly handled that routine task. Now the electronic scientist has devised a means of doing the tabulating mechanically on two UNIVAC machines built by Remington-Rand. The work is done better and is faster and far more accurate.

Congress authorized Census to buy the second machine after the Bureau showed that the dollar spent on tabulating goes twice as far today as it did ten years ago, despite higher labor and equipment costs.

Census is now able to get information to the business community when it is fresh and meaningful. Here's an illustration:

In the last week of October, President Eisenhower announced that unemployment had dropped 400,000 the previous month and critics questioned the figure. They didn't see how it was possible to have the information because Census didn't begin to collect the employment statistics until Oct. 11. The answer was the electronic computer which provided the 400,000 figure (since confirmed) in a matter of hours after the reports were received in Washington.

What Census has done the Patent Office could do also is the opinion of a team of scientists headed by Dr. Vannevar Bush which after a study has declared that early mechanization of this agency is both feasible and desirable. The Patent Office now is setting up a rapid-selector machine experimentally.

The Bush committee believes that mechanization would benefit two key areas of our society— industrial research and business management. Its report to Secretary of Commerce Sinclair Weeks said in part:

"A primary step in a research project is the collection and study of pertinent scientific literature.

Existing patents form a significant segment of this literature. At present most scientists are unable to use the Patent Office collections effectively. Better access to the Patent Office storehouse of scientific and engineering facts will be a spur to scientific progress.

"The successful application of machine searching in the Patent Office will lead the way for the Secretary of Commerce to develop mechanization of search for other types of scientific information.

"There is another fruitful field, that of management decisions. Those who chart the course of business enterprises must perceive opportunities and estimate trends if their decisions are to be sound and their firms are to flourish. The records of the patent system would be a valuable aid to management. In the issued patents will be found the published thinking of the most creative minds in the world. This reflects the new production fields for industry which will be in operation five to ten years in the future.

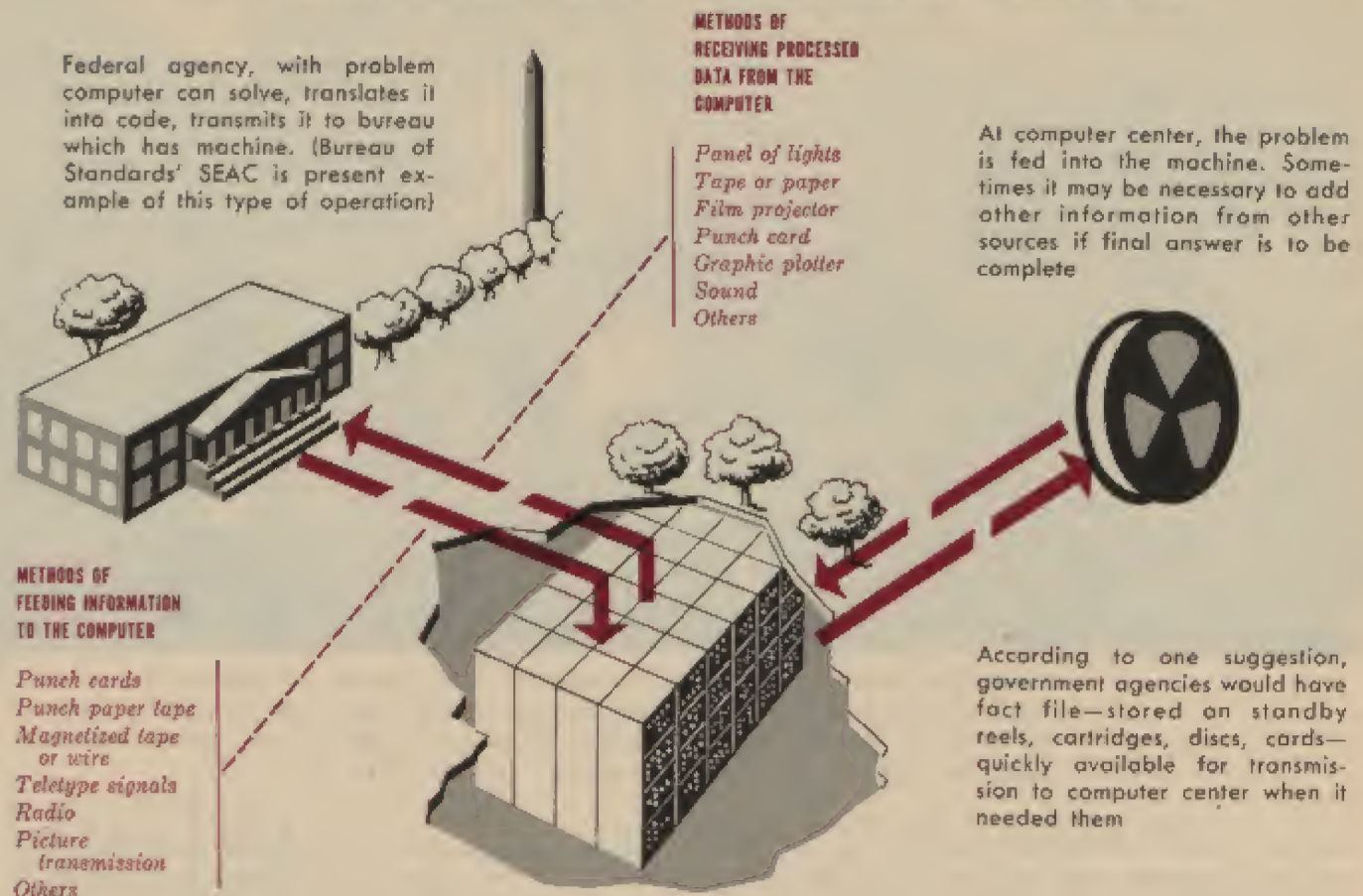
"Any improvement of the search process will enhance the usefulness and status of the patent system in general. If the search process is made more thorough fewer patents will be issued which the courts will later find invalid."

American scientists and technicians are overburdened. Their numbers are critically short. To increase them is a pressing national problem. The electronic scientist believes he has a partial answer for this, and his solution would provide more production from the present number at a smaller over-all cost.

Up to half the working time of a scientist today is spent merely in learning what already is known. Experts estimate that nearly \$2,000,000,000, more than \$1,000,000,000 by the government itself, is spent annually in such research. Here, again, the electronic scientist proposes to mechanize known scientific facts.

Former Assistant Secretary of Commerce James C. Worthy, one of the federal officials who was promoting the use of electronic science in government said: "If we can develop, through electronic devices, means for discovering more quickly what has already been

HOW COMPUTERS SERVE GOVERNMENT AGENCIES



done and thereby avoid the necessity for duplicating findings already established, we shall greatly increase the efficiency of our scientific efforts."

A major problem for government, especially the Defense Department, is efficient inventory control. Here is another area where the electronic scientist is convinced he can be helpful.

"Efficiency of operations, which affects not only budgetary costs but military security as well, depends on an accurate and timely flow of information throughout the supply systems," Mr. Worthy explains. "If this information could be received and processed to the stage where appropriate management decisions might be made more quickly, the savings from reduced inventories might be enormous.

"Remember that much of our military equipment has a high rate of obsolescence. The fact that, with improved techniques, our supply departments would not need to overstock to protect against possible emergency demands also would mean that we could eliminate or minimize many of our present problems of surplus material disposal."

An age-old military problem was how to determine precisely what the size, shape and speed of a given weapon ought to be. Billions of arithmetic calculations were necessary to obtain the answers.

Army, Navy, Air Force and the Atomic Energy Commission are among federal agencies which have put electronic superbrains to work on their military problems. At present, the International Business Machines Corporation is installing a big computer, called NORC, at the Naval Proving Ground, Dahlgren, Va.

The military agencies also have started to use these machines for other than military and strictly scientific operations. Here's an example:

At the Wright Air Development Center in Dayton,

O., an electronic computer named OARAC (Office of Air Research Automatic Computer) has saved the Air Force millions of man-hours and thousands of dollars since its installation in 1953.

OARAC, a room-size digital computer, can handle a five-hour calculating assignment for a total cost of \$60. The same task, performed by men, would require approximately 200 man-hours for an estimated total cost of \$600.

Another example:

The Army's Quartermaster Corps invites bids for contracts to deliver 25,000,000 shirts to its domestic and overseas supply depots. The detailed bids, covering shipping and other such costs, are delivered at deadline time to the Corps' New York office.

There the bids are translated into code and placed on a teletype. The coded message is received in the red brick radio building of the National Bureau of Standards.

It is handed to experts who "read" it into a black-paneled apparatus with flashing lights known as SEAC (short name for the Bureau of Standards' Eastern Automatic Computer).

Within a few hours, SEAC not only has searched out and found the lowest bidder but also has determined what monthly shipment schedules each successful bidder must follow to have his products arrive at the correct time at the depots, and the exact numbers and sizes of shirts for each shipment.

SEAC has taken much of the guesswork out of the relatively few contracts it has processed. Also it does accurately in a few hours what a staff of experts once took weeks to do.

Following the Quartermasters' lead other key Army, Air Force and Navy officials have given "go ahead" directives to their operating personnel to study ap-

plication of electronic processes to their functions. Already the Air Force has contracted with the Eastman Kodak Company for a machine to mechanize its intelligence information. The Eastman minicard system will mechanically store and retrieve vital Air Force secrets.

Other operations which, electronics scientists believe, lend themselves to electronic processing are:

Social Security's 60,000,000 wage records.

Internal Revenue's tax records and files.

The million checks the Treasury Department writes daily and which must later be checked as to amounts.

The Veterans' Administration's records.

Meanwhile, the Forest Service, in cooperation with private landowners and state foresters, has worked up a method of maintaining a continuous inventory of the forest resource in a given stand of timber through the use of IBM mark sensing.

To keep a balance between the demand for wood and the ability of the forest to produce it, the forest manager must know at all times the quantity, condition, quality and location of his cutting stock. By use of electronic machines he can obtain and keep records of such information at a cost of one cent to two cents an acre a year.

Mark sensing cards are made out for each numbered tree in sample plots in a given stand of timber. As the forester goes through the plot he records in code on each card such information as: tree number, plot number, species, diameter at breast height, rate of growth, volume, its position in regard to slope of the land, exposure to sun, and the like. Information on sample plots is then applied to the whole stand.

By sorting the cards electrographically, the forester can locate timber by volume, grade or species. He knows how much of each species he has on hand.

He knows how much is cull, how much is fair, and how much is good. He knows how much growing stock he has and can predict future growth. He can plan his cuts for the next five years, for the following five- to ten-year period, the ten- to 20-year period, and the 20- to 40-year period.

Some 20 of the largest pulp and paper companies in the United States and owners of large timber stands are now using this electronic method of continuous forest inventory.

The Eisenhower Administration is giving real encouragement to the electronic scientist in his study of government problems.

A move is underway to set up within the Bureau of Standards a staff of experts to keep pace with the rapidly growing electronics industry and to advise federal agencies if their operations can be streamlined through use of its findings.

The Bureau and its team of scientists, headed by Bureau director Dr. Allen V. Astin, is working on a number of revolutionary machines. One of them is a machine that can "read" a certain type by means of an electronic process. If the automatic reader is developed to the point where it could be used in the Post Office Department, for example, the stepped-up efficiency and lower costs of its operation would be tremendous because each piece of mail must be read a half dozen times before it is delivered. The Department is already working with scientists on an electronic device, now in the experimental stage, that will turn letters face up so stamps may be cancelled.

"We are most certainly on the threshold of a business office revolution," Dr. Astin says, "which will free the white collar worker from routine mental drudgery much as the industrial revolution of the last century freed the manual laborer from much physical drudgery."

END

PIONEER COMPUTER:

DR. SAMUEL N. ALEXANDER (standing, third from left) supervises installation of Bureau of Standards SEAC in new location. Dr. Alexander heads bureau's Data Processing Systems Division, which handles design, construction and operation of computers, assists other federal agencies on computing problems. SEAC, a pioneer among modern computers, makes line-by-line reading of instructions which are fed into it





© ARNOLD ROBERTS

AN AUTHORITATIVE REPORT BY THE STAFF OF THE CHAMBER OF COMMERCE OF THE UNITED STATES

AGRICULTURE

One of the most important factors in the downward adjustment of farm prices the past three years has been the marked decline in export volume. In recent months the downward trend has been reversed. Even though the improvement has been modest (four to five per cent), USDA officials and other observers think the level of exports in this year may be 10 per cent above 1954.

This is a hopeful note for U. S. farmers because percentage declines in export demand tend to be multiplied into price declines three to seven times as great in the commodities directly affected. In other words, the prices of such commodities are hypersensitive to export demand.

Domestic demand is expected to continue strong and healthy. If the encouraging signs continue, the farm business can look forward to some reasonable stability on the demand side.

CONSTRUCTION

Evidence is that the fix-up market for existing homes now approaches the volume of new home construction. That makes it a \$12,000,000,000 business.

This market deserves more direct attention by manufacturers, distributors, realtors and builders. To cultivate this market they need to pro-

vide more materials and packages of materials adaptable to modernization jobs; cater to the do-it-yourself group with consultation and instructions along with more vigorous selling; provide specialized facilities and services.

The efforts of all interested groups must be coordinated, particularly at the local community level, to provide a readily available "fix-up package" so that the average family can plan, finance, and complete a repair or modernization project promptly and easily.

CREDIT & FINANCE

The Treasury cash position at year end was considerably better than had been anticipated. Slower spending, particularly by the military, during the first six months of the fiscal year was primarily responsible. Aside from temporary needs in March or April no additional cash requirements are foreseen.

Large refinancing operations will be required in February and March to handle maturing obligations. Most interesting of this group is the \$2,600,000,000 of tax-exempt 2½ per cent bonds issued early in the New Deal period and now called for redemption.

Proposals to extend the life of the Small Business Administration beyond the present expiration date of June 30 will receive much sup-

HOW'S

port, particularly from the new Democratic chairman of the Senate and House Small Business Committees.

DISTRIBUTION

Our greatly expanding economy is drastically stepping-up the need for intermediate and wholesale marketing services.

During the past 20 years the number of wholesalers has nearly doubled in relation to business firms.

Although large and diversified manufacturers can set up their own wholesale branches and offices, these are often expensive operations in relation to sales volume. For smaller and medium size manufacturers such branches are out of the question.

Recently one of the nation's largest food processors decided to abandon direct distribution in favor of using wholesale channels for its nonperishables—a developing trend in many lines.

Reasons are: 1, savings on warehouse expense by retailers and manufacturers; 2, quick delivery, which allows retailers to get quicker turnover and carry smaller inventories; 3, reduction in buying risks for retailers; 4, manufacturers' ability to add new products more easily.

FOREIGN TRADE

Export of goods and services by the United States decreased in the third quarter of 1954, but temporary factors caused much of the decline, the U. S. Department of Commerce says. The balance of transactions favored foreign countries and added another \$600,000,000 to their gold and dollar holdings.

U. S. exports should increase, however, as more and more areas relax import restrictions on U. S. goods. Most West European countries have recently freed imports from the United States in varying percentages up to 86 per cent for Belgium, the Netherlands and Luxembourg. Germany, the United Kingdom, Sweden, Italy and most recently Denmark abolished import restrictions on a long list of dollar imports.

Sterling area countries including South Africa, Northern Rhodesia

BUSINESS? a look ahead

and New Zealand are also reducing restrictions. India is expected to take similar action on certain imports. Pakistan is doubling her foreign exchange allocations for imports in the January-June period, and Egypt has liberalized dollar exchange.

Meanwhile, a few countries, including some in the Far East, are tightening trade controls.

GOVERNMENT SPENDING

Reports from the Hoover Commission are beginning to reach Congress. A few already have been submitted. All told, the Commission will send 16 to 18 of its own special reports and about the same number of task force reports to Congress in addition to its final general report. From now on one of these documents must reach Congress every week if the Commission is to meet its May 31 deadline.

Some, like the report on Paperwork Management, can be put into effect almost immediately by Executive Order, and will result in savings almost at once. Action on others, such as those dealing with medical services, federal real estate, or water resources and power—highly controversial questions—will come only after protracted legislative wrangles.

However, members of the economy bloc who hope to reduce the estimated 1956 budget deficit by expenditure cuts beyond those proposed by the Budget Bureau, will not get much help from the Hoover reports this year. These reports will come along too late to have much effect on appropriations in fiscal 1956. Next year, however, will be another story, for there will be plenty of time by then to make good use of the reports in money-saving efforts.

LABOR RELATIONS

Apparently the labor organizations feel that national labor policy will not be easy to change. At least the unions' renewed activity at the state level is open to this interpretation.

Inspiration for labor's activity among state legislators is the state right-to-work laws. Members of the 44 legislatures meeting this year

will hear much about these—even in states where such laws are not a live issue.

Both AFL and CIO are working to repeal right-to-work laws in the 17 states which now have them, and to prevent other states from passing similar legislation. They are also working to strike from the Taft-Hartley Act the section which reserves this area of legislation to the states.

States where real battles are in prospect include Missouri, Kansas and Maryland. States which now forbid contracts providing for compulsory union membership are: Alabama, Arizona, Arkansas, Florida, Georgia, Iowa, Louisiana, Mississippi, Nebraska, Nevada, North Carolina, North Dakota, Tennessee, Texas and Virginia.

NATURAL RESOURCES

The United States is gradually getting a national land and water policy. President Eisenhower is the chief designer. His plans revolve around the "partnership" concept of resources development.

Legislation on soil and water conservation, enacted by the Eighty-third Congress, is a forerunner of further revisions in existing laws and procedures, all designed to promote wise conservation and use of our natural resources. The President has promised to submit specific water policy legislation to the Eighty-fourth Congress.

The "partnership" challenge, posed in a presidential "State of the Union" Message two years ago, was reaffirmed in the 1955 message. It involves the combined efforts of the states, local communities, private citizens, and the federal government, all sharing responsibility for these things each can best undertake.

One phase of the land and water policy involving upstream watershed protection and flood control will soon get under way.

Another phase—federal participation in large water and power projects—is being charted.

TAXATION

With a few exceptions, tax legislation before this session of the Eighty-fourth Congress will be of a

relatively restricted or minor nature. The President, of course, recommends extension of the 52 per cent corporate rate and of the excise rates scheduled to drop April 1. The temper of Congress appears to indicate acceptance.

The Ways and Means Committee has received some tax change suggestions from taxpayers but the number has been surprisingly small considering the mass of revision involved in the 1954 Act. Proposals range from a highly technical request for coordination of the withholding provisions of the Federal Insurance Contribution Act, the Federal Unemployment Tax Act and the income tax, to recommendations for rate changes in selective excises.

This seeming disinterest in part stems from a feeling that the continued unbalance of the budget leaves little leeway for desirable tax reduction, and in part from recognition of the extremely political nature of congressional jockeying during this session.

TRANSPORTATION

Many bills affecting transportation have gone into the hopper during the first month of the Eighty-fourth Congress. Others are on the way. Normally this would be standard procedure and of no special significance. However, such is not the case this year which could well be an important one for transport interests.

This year looks like a key year primarily because of the intensive studies just completed, and being completed, by several important Administration groups on transport problems. More attention is being given to this field now than at any time for many years.

The President's Cabinet Committee on Transportation Policy has made recommendations on changes needed in the general transport field. His special committee studying highway problems has reported on ways for the federal government to help modernize the nation's roads and streets. Other study groups such as the Hoover Commission have made recommendations that would affect future relations between the government and the transport industry.

Irrigation brightens Dixie's future

From the
irrigated 3% of
U. S. farmland

Comes
25% of
America's food



Although annual rainfall averages 50
inches, southern states still have six
crop-killing droughts a year

BY STANLEY FRANK

IRRIGATION CRUSADER *Jim Eleazer (left), of Clemson College, and J. B. Douthit examine a sprinkler head on Mr. Douthit's South Carolina farm. Mr. Eleazer says, "Without water when he needs it today's farmer faces ruin constantly"*



IRRIGATION that transformed western deserts into productive land is moving back to the South and Southeast to help fight prolonged dry spells in a normally heavy rainfall area.

Less than three per cent of the tilled land in the United States today is irrigated. Yet it yields a fourth of the nation's agricultural products. Southern farmers never thought they needed irrigation. They're now finding out that having water when it's needed can mean increased production and elimination of damage to crops by drought.

The drought that ravaged the South last year, the worst ever recorded, was a disaster forecast by Jim Eleazer with the fervor and conviction of a Biblical prophet.

Mr. Eleazer, a homespun South Carolinian, has been the most ardent missionary for irrigated farming in his section for a decade. Like other crusaders with long-range objectives, his warnings have been shrugged off as false alarms. Few men can restrain the impulse to crow "I told you so" when their vision is vindicated, but the fulfillment of his prediction gave Mr. Eleazer no satisfaction. It was a victory achieved at frightful cost. In his home state alone, \$120,000,000 worth of crops withered on the vine in 1954.

"The tragic part of the whole thing is that irrigation could have brought profits three times greater than the losses," says Mr. Eleazer, agricultural information specialist at Clemson College.

"That figure is not guesswork," he says. Controlled experiments in southeastern states have proved conclusively that irrigation triples, at the very least, the productivity of the soil.

All the money that went down the drain last year could have irrigated the 11,000,000 acres under cultivation in South Carolina if farmers had prepared for it a few years ago when times were good.

Cost of installing and operating irrigation systems in that region is negligible compared to costs in the West.

"We don't have to bring water a thousand miles from distant snow-fields," Mr. Eleazer says. "The Good Lord sends us ample rain. The trouble is it doesn't always come when we need it. Our problem is to conserve rain and draw upon it

No boss ever expected service like this



No secretary ever dreamed she could do so much. Just ask any executive who has a Kodak Verifax Copier outside his office

HERE'S THE WAY YOU'LL BE COMPLETELY SPOILED THE VERY FIRST DAY... AND SAVE AN HOUR OR MORE

Starts when you hang up your hat



Let's say you're just back from a trip . . . or you've taken work home the night before. You have a bagful of items bearing your notations: "Jack, Joe, Jim—what do you think of this?" And so on!

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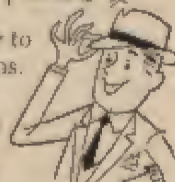


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You told your secretary to make only three carbons. You realize, now, you need more . . . but you must dash off right away. Impossible as it sounds, your girl can whisk out 3 Verifax copies in 1 minute flat. And they cost less than 4¢ each.

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Irrigated land yielded 2,215 lbs. of seed-cotton per acre (left); unirrigated acre produced 1,560 lbs. Pictures show first picking.

when dry spells threaten crops during critical growing periods."

Mr. Eleazer believes that something as simple as digging a pond, or a big, open pit on every farm will do the trick. The water lost by seepage and evaporation will be balanced by the average rainfall, he says.

"If that supply is not sufficient," he continues, "another cheap source of water can be tapped from wells. Although the water table is at an all-time low due to last year's drought, surveys show there is much better than an even chance of hitting an underground spring practically anywhere in the Southeast. It's a sad commentary that our farmers had to pay through the nose before they were convinced that irrigation is crop insurance, but it's a lesson they won't forget in a hurry."

Irrigation, the new byword, is a strange word in the South. Every schoolboy knows the vital role irrigation has played in the development of the West and in the expansion of the national economy, but the South ignored the tremendous implications of the new water frontier opened beyond the Mississippi.

The fertility of vast western tracts which were barren two generations ago has been achieved at no expense to the government. A common misconception is that western farmers owe their prosperity to lavish hand-outs from federal agencies in the form of dams and watersheds built with public funds. Such is not the case.

Fully two thirds of the 22,000,000 acres now under irrigation are serv-

iced by privately and cooperatively owned enterprises. The remaining 7,000,000 acres are supplied with water from 69 major projects built by the Department of the Interior's Bureau of Reclamation and operated on a self-liquidating basis. Assessments vary with distance and terrain, but farmers pay an average of \$3.50 for every acre-foot of water used and they are charged about \$3 per acre a year to amortize construction costs.

Further, the tax revenue from land irrigated by federal facilities has amounted to more than \$3,000,000,000 since 1916—a sum that exceeds by 25 per cent the total cost of building and equipping the projects. The evidence is clear that irrigation is good business for all concerned.

In the past 50 years there have been two great revolutions in America's largest industry—mechanization and irrigation. The traditionally conservative South adopted mechanization, the more expensive proposition, but irrigation was considered unnecessary in an area singularly favored by indulgent nature.

Meteorologists call the region between the Mississippi and the Atlantic the rainfall belt. Compared to the rest of the country, it is. The average annual precipitation in the United States is 30 inches. Southern states average 50 inches of rain a year, apparently adequate for the inch of water a week which crops need for good harvests. The Appalachian Mountain Range, running like a spinal column from Alabama to the Canadian border, feeds an extensive network of rivers and streams. The South is in fine shape

for water—but it's all a snare and a delusion.

"Official records of the past half century show that South Carolina averages six droughts a year, each lasting at least two weeks," Mr. Eleazer points out. "The figures for neighboring states are about the same as ours. It's a mortal cinch that one important crop a year will be ruined by a dry spell. But from time immemorial farmers have accepted crop failures as unavoidable hazards.

"That's utter nonsense. It's high time they took measures to protect their investments in crops. I shudder to think of the consequences if they don't. Long-range weather forecasters say we are heading for a period of prolonged drought. We had one of those cycles in the early 1900's and I still have a vivid recollection of the suffering it caused. I don't want to see a catastrophe like that again."

Southern farmers are not the only people who have been guilty of apathy and lack of foresight in failing to embrace the advantages of irrigation. Experts were guilty of the identical charge. They pulled a monumental boner when the Tennessee Valley Authority was created in 1933. Congress approved the construction of 27 dams for power, flood control and navigation in an area of 41,000 square miles—but not a single mention was made of irrigation.

"It's incomprehensible that irrigation was not included in the TVA Act," comments D. S. Mitchell, chief of the Bureau of Reclamation's land and water division. "The added cost would have been a drop in the bucket, but everyone subscribed to the belief that supplementary irrigation was not needed in the South." Mr. Mitchell adds that another stumbling block was an old law restricting the Bureau to operating irrigation projects in 17 states west of the one-hundredth meridian.

"That law is still in effect," he says, "but there is no question that it must be amended. Every section of the country can use irrigation sometime during the year. Farmers in the rainfall belt think they can do without it, but once every four or five years they're hit by drought—and they clamor for help. Right now, truck gardeners are putting on a big drive for irrigation on the Maryland peninsula, where it seems to rain all the time."

Mr. Mitchell is not exaggerating when he says every section can benefit from irrigation. In Aroostook County, Maine, where rain falls an average of 265 days a year, irrigation increased potato production in 1954. In the Pacific Northwest, on

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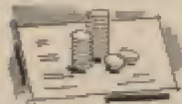
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the opposite side of the continent, farmers have discovered they need supplementary irrigation despite the annual precipitation of 160 inches. Louisiana is confronted with the problem of draining water from crops in swamps—then putting it back on an average of seven times a year, when droughts come.

Agriculture is the oldest science practiced by man, but a substitute for water has never been found. It's the one indispensable element in the cultivation of foodstuff. Vegetation grows in all extremes of climate and temperature from the Arctic to tropical jungles. Hydroponics, the technique of growing plants in water solutions of minerals, eliminates even the need for soil. During the Korean war, the Army raised millions of pounds of fresh vegetables in hydroponic trays in Japan.

Water is our most precious natural resource. The Department of the Interior estimates, however, that only 14 per cent of our rainfall is converted to gainful purposes. The rest flows unused into the oceans. Such prodigal waste no longer can be tolerated in the face of increasing demands for water by industry, agriculture and municipalities. The water used for domestic purposes is a mere trickle in the over-all volume consumed, yet scores of major cities have seen their reservoirs sink dangerously low in recent years.

The South's currently intense interest in irrigation stems directly from the efforts of two men. One, of course, is Mr. Eleazer. The other is W. B. Camp who, by Mr. Eleazer's own testimony, "is my mentor, sponsor and chief inspiration."

A South Carolinian, Mr. Camp went to work for the U. S. Department of Agriculture after graduating from Clemson College in 1916. He was sent to Bakersfield, Calif., to make trial plantings of long-fiber cotton and promptly ran into violent opposition. Californians called cotton a "poverty crop" and wanted no part of it.

Today, the revenue from cotton exceeds California's combined income from fruit, the state's better known product. The Kern County Land Company gave him a small plot of undeveloped land for the Shafter Experimental Station, however, and he began to raise cotton by irrigation.

In 1928, Mr. Camp left government service to go into irrigation farming on his own. He now is one of the biggest farmers in the country with his bumper crops of cotton, potatoes, alfalfa and sugar beets. A measure of his success is that it costs him about \$6,000,000 just to plant his potatoes.

In 1946, he returned to Clemson College in South Carolina for his thirtieth class reunion, an event that was to have a significant impact on southern agriculture. Disturbed by conditions in his home state, Mr. Camp decided to do what he could to raise the level of farm income among his old friends and neighbors, and he knew no better agency than irrigation, which had conferred such bountiful benefits upon him. He chose Mr. Eleazer, his classmate, to be his disciple and to spread the gospel of irrigation.

Jim Eleazer, the son of a poor country doctor, wanted a farm "so bad I could taste it" after graduation, but he had to settle for a job as county agent, keeping farmers informed of new developments. By 1941 he was known so well in the field that approximately 100 newspapers printed his weekly columns and a network of rural stations carried his weekly radio programs. During the war, Mr. Eleazer also ran the Clemson College agricultural information service in his spare time. He admits he had nothing more than an academic interest in irrigation until he was exposed to Mr. Camp's contagious enthusiasm, and then he went whole hog for it.

The crusade was launched with a \$15,000 donation from Mr. Camp for portable irrigation equipment to give demonstrations in South Carolina and adjoining states. Mr. Eleazer applied his knowledge to experiments on private farms and state agricultural stations. You don't have to hold a degree in agronomy or even know which end of a cow eats to understand the spectacular results achieved. The figures tell an eloquent story.

Two adjacent acres were planted with cotton at Clemson last spring. One, not irrigated, produced four tenths of a bale worth \$80. The other was irrigated and produced 1.6 bales worth \$320. It cost \$100 to prepare the acre for irrigation, leaving a difference of \$140 in additional income. The differential will be closer to \$230 an acre, however, because irrigation costs are only \$10 a year after equipment is installed. In another experiment, at the Watkinsville Experimental Station in Georgia, an average of 742 pounds of seed cotton was gathered from an acre of irrigated land in 1952 against 253 pounds from fields watered only by rain.

W. N. Henderson, of Ninety Six, S. C., watered one cornfield four times in 1953 and got 110.6 bushels an acre. Another field, irrigated twice, produced 73 bushels an acre. A third field that was not irrigated

(Continued on page 80)



"I'm tempted... to get a postage meter!"

That's what Mr. Beeply said as he looked at himself in the washstand mirror.

Mr. Beeply was plastered—but with stamps. It happened like this:

It was the last day of the month. Miss Thuerly, the demon secretary and invoicer, was home enjoying her annual winter bout with the flu. So he took on the job himself.

The night was very cold and with every heating gadget in the office turned on full blast, he was soon liberally bedewed with perspiration, brow and hand.

When he got around to stamping his envelopes, the dew and the glue got together in a mass retaliation act. Mr. B. ended up, literally festooned with stamps.

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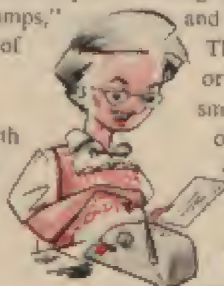
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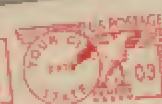
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ROBERT PHILLIPS—BLACK STAR

LABOR BOARD STRESSES REALISM

In this exclusive interview,
Guy Farmer, NLRB Chairman,
explains the new attitude with
which the group approaches
problems put before it

Mr. Farmer, what is the main significance of the new policies of the National Labor Relations Board?

Not as many new policies have come out of our Board as some would lead you to believe. There have been many important decisions, but it is only in about half a dozen areas that the new Board has made substantial changes in the interpretation of law.

I'm sure you know that by the "new" Board I mean the Board since President Eisenhower appointed three of the five members.

The changes have been directed chiefly to one or more of three principal ideas; first, to maintain stability of labor-management relations, once established; second, to give a more realistic interpretation of the law and bring our decisions more closely into tune with the language of the statute and the decisions of the appellate courts, and third, to simplify the rules of the game.

Looking across the entire field of labor-management relations, it is difficult to say just what will prove to be the most significant, but I am inclined to think it will prove to be in the second area—the area of realism.

What do you mean by realism?

I have a number of situations in mind. For example, the old Board laid down the rule that questioning employees about their union affiliations was forbidden. They called questioning employees a violation—illegal—regardless of the reason for it. And the old Board clung to this doctrine despite its rejection by nearly every Court of Appeals that considered it.

The new majority of the Board decided that this was fundamentally an unrealistic view.

We concluded that the essential thing here was not necessarily the act of questioning but the context in which the questioning occurred. So we put the test on that basis. As we said in the *Blue Flash* case, where we found no unlawful action by the employer, "The test is whether, under all the circumstances, the interrogation reasonably tends to restrain or interfere with the employees in the exercise of rights guaranteed by the (Taft-Hartley) Act."

Of course, that doesn't give employers license to harass employees with questions about their union affiliations or sympathies. After all, an employee's union affiliations and

sympathies are his right, protected by the law.

Since the Blue Flash decision we have found employe interrogation unlawful in a number of other situations. This new approach eliminates the unrealistic result that even the most innocent inquiry to an employe about union activities is magnified into a full-scale violation of the law.

Has the Board applied this thinking anywhere else?

We have also applied it in areas such as the new jurisdictional standards, craft severance, and the strike-lockout situation in association-wide bargaining, and in the rules on an employer's duty to furnish information for collective bargaining. It likewise was applied in our decisions ordering elections because of the "inconsistent action" of a union which continues to picket an employer's establishment after the union has disclaimed any interest in representing the employes.

Do you consider the new jurisdictional standards significant?

Certainly they are one of our most widely discussed actions. We worked on those decisions a long time, but their actual impact is rather difficult to assess. Right now, on the basis of the best study we have been able to make, it appears that they will bring a reduction of only about seven per cent in our huge workload, which has been running about 15,000 cases a year.

It seemed to the majority of the Board that it would be better to prune our caseload so as to have decisions made more promptly in those cases involving concerns which have a substantial impact upon interstate commerce, rather than to delay our decisions possibly a year or so merely to extend the Board activities to the widest possible area that our funds would reach.

After all, the major objective of the law is to reduce the impact of labor-management disputes upon interstate commerce. This objective hardly seems to be carried out by holding up a decision in a case involving, say, the steel industry in order to decide a case involving only a small garage owner whose sole connection to interstate commerce is conjured up by pronouncing such a magic phrase as "franchised dealer."

What kinds of business would the new policy affect most?

In view of the fact that the

changes in the standards are chiefly in terms of increasing the dollar volume of business that a company must do to come under Board jurisdiction, it will be the smaller concerns that will fall outside the Board's area of jurisdiction.

In all but possibly a few unusual situations, it follows naturally that the smaller the business the less the impact upon interstate commerce. Certainly no one will contend that Joe's Garage, even if he retails new automobiles, has anything like the impact upon interstate commerce that the du Pont Company has, for example.

Probably the most substantial changes in the new standards affect three types of business which are generally regarded as fundamentally local: One is retailing, the second is the smaller local public utilities, and the third is intrastate transportation. In these three, the new Board raised the standards substantially.

What happens when the Board declines jurisdiction over a particular business?

In effect, Title I of the Taft-Hartley Act—the part with which NLRB is mainly concerned—will not be applied to such enterprises. The Board will not hold elections in such plants and it will not entertain charges of unfair labor practices from the employer or the employes or any union concerned.

Could a union get a closed shop?

Yes, if the business is not in one of the 17 states with laws prohibiting compulsory union membership.

What about other state laws?

That is a matter outside our control. It's true that most of the states do not have comprehensive legislation dealing with labor-management disputes, but it is to be hoped that states which do not now have machinery will devise laws and pro-

WHEN BOARD WILL ACT

Taft-Hartley gives the National Labor Relations Board jurisdiction over all businesses "affecting" interstate commerce, no matter how slight.

Some businesses whose operations are largely local in nature have only a minor impact on commerce between the states. Recently, NLRB set new standards which these borderline businesses would have to meet before the Board would exercise its federal powers in their problems. Here are some:

Retail Stores and Restaurants: A company operating a single retail store or restaurant must

- 1 Make annual purchases directly from out of state of at least \$1,000,000, or
- 2 Make annual purchases directly or indirectly from out of state of at least \$2,000,000, or
- 3 Have annual sales directly out of state of at least \$100,000.

As to intrastate chains, NLRB will use the totals for all outlets in the chain to determine whether any one of these standards is met. If it is, jurisdiction will be asserted over the entire chain or over any store or group of stores.

Public Utilities: Must do gross business of at least \$3,000,000 a year.

Transit Companies: Must receive \$100,000 or more annually from interstate transportation of passengers, even though the transit line may be only a link.

Transportation companies, such as trucklines: Must operate as a link in the chain of interstate commerce and receive annual income of at least \$100,000 from such service.

Radio and television and telephone and telegraph systems: Must have gross income of at least \$200,000 annually.

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cedures designed to encourage collective bargaining and which will be well rounded and fair.

Mr. Farmer, is there any question as to whether the states can act in these situations?

Yes, there has been some debate in legal circles as to whether state laws could be applied, and one lower court in New York state has held that they cannot. However, a Michigan state court has taken the opposite view, that the state law applies, and the State Labor Relations Boards in New York and Wisconsin take the same view, according to the reports.

How about the decisions made under the old standards? Will the new Board enforce them?

Yes. To do otherwise, in my opinion, would make the administration of the law virtually impossible. Certainly no one who thinks seriously about the problem would suggest that every time the Board reverses a precedent it should recall all the prior cases decided under that precedent and decide them all over again. Such a rule would encourage disregard for law and put a premium on dragging out litigation just as long as possible on the chance that the Board might make some change in the rules. This could only lead ultimately to the destruction of the Board's informal processes of settlement which are the means of disposing of nearly 80 per cent of the cases that are filed.

Is the Board widening the scope of collective bargaining?

No. You probably have in mind the Richfield Oil case. There the Board held that the company had to bargain about a stock purchase plan.

That decision merely helped define the bargaining area which already existed. The law requires bargaining "in respect to rates of pay, wages, hours of employment, or other conditions of employment." The Board had previously held, with approval of the courts, that pension plans and group insurance plans come within both the terms "wages" and "conditions of employment."

A four-member majority of the Board felt that a stock purchase plan to which the employer made substantial contributions for the benefit of the individual employees, and which was tied to their employment, also came clearly within both of those terms. It is difficult to see how any other view could be taken realistically.

Doesn't that ruling put control

of the company on the bargaining table?

Not at all. What you really had in the Richfield Oil case was a request to bargain over wage benefits in the form of contributions to the purchase of stock.

It is true, of course, that stock ownership does carry with it the right to vote in corporate meetings and elections, but as to these matters the union has no voice whatever as a bargaining agent. After all, the law confers upon a majority-designated union the authority to represent the employees only as employees, not as stockholders.

Moreover, in this case the employer selected a particular form of compensation for the employees, and it would hardly seem appropriate, under the clear language of the law, to permit the employer to withdraw from bargaining on a matter of compensation merely because of the form of payment he selected.

Doesn't that view conflict with the ruling that a union cannot compete with the employer?

No. The Bausch & Lomb decision serves to underscore the very point I was making. The union's duty is to represent employees as employees.

When it sets itself up as a direct business competitor to the employer whose employees it is bargaining for, then the union's devotion to the interest of the employees, as employees, is put in question.

We found that, under the facts of that case, the employer had no duty to bargain because the union could not perform its legal function as bargaining representative while it was at the same time an immediate competitor of the particular employer whose employees it claimed to represent.

Is a guaranteed annual wage a proper subject for bargaining?

I have not studied the annual wage question closely, and I will not attempt to pass advance judgment on any question that might even conceivably come before our Board for decision on some aspect. However, as you know, wages are one of the subjects on which the Taft-Hartley Act specifically requires collective bargaining.

Is it true that an employer must "open the books" to the union if he doesn't want to give a wage increase?

No, not in the literal sense that your question implies. The Board has never ordered any employer to "open the books."

However, the Board has recently



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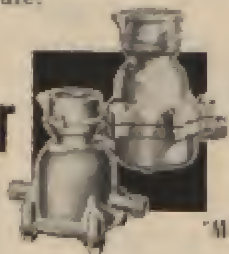
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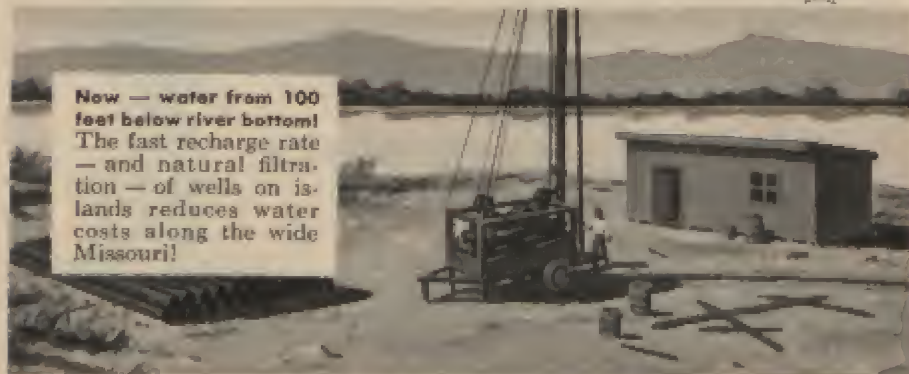
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reaffirmed the rule that an employer who refuses to agree to a wage increase on grounds of inability to pay must make a reasonable effort to substantiate his position. The company must be prepared as a test of its good faith to back up the assertion.

The Board has also held, in a long line of cases with court approval, that an employer has a duty to furnish the union with sufficient information about wages and wage rates to enable it to bargain intelligently.

Hasn't the Board also laid down some new rules regarding certain types of strike activity?

Not as such. But in particular cases that have arisen we have had to deal with several types of tactics which we found to be inconsistent with good faith bargaining.

One of these was the slowdown. In the Personal Products case we held that the union bargained in bad faith when, during contract negotiation, it engaged in such harassing tactics as slowdowns, refusal to work overtime, and unauthorized extensions of rest periods.

What about the technique of striking one of several employers during bargaining?

That is not the same as these harassing tactics just mentioned. In these cases, it has not been a question of employee activity which the law does not protect, but rather a question of whether the employers who were not struck could temporarily lay off their employees as a countermeasure to this so-called "whipsaw" strategy.

The Board had previously held that employers in such a situation could not lawfully counter with a temporary lockout. However, the U. S. Court of Appeals in the Davis Furniture case disagreed with this view. So did the Board, in the decision involving the Buffalo Linen Company. While we did not hold that the temporary lockout is the equivalent of a strike, we did hold that a strike against one employer of an association during bargaining constituted a threat of strike action against the other employers. Accordingly, the other employers could take defensive action by temporarily laying off their employees.

Have you found any unusual employer tactics unfair?

Oh, yes. In addition to the ordinary cases of illegal discharges—which involved about 700 employees last year—we have found bad faith on the part of employers in refusing wage and related information and

in various other situations where the employer has sought to evade his responsibilities under Taft-Hartley.

For example, in the Nettleton case we were confronted with the situation in which the management, after scheduling bargaining sessions with the union, went directly to the employees with offers of wage increases and other benefits. The Board held this conduct was indicative of a lack of good-faith acceptance of collective bargaining.

The Board has a new ruling on the 60-day provision of the Taft-Hartley Act, hasn't it?

That's right. But the ruling seems to be misunderstood.

We did not hold that the law bans all strikes during the term of a contract.

The Board previously held in a decision involving Wilson & Co. that the maximum waiting period was 60 days after notice, regardless of the contractual terms. The U.S. Court of Appeals at Cincinnati recently rejected that view and the Supreme Court refused to review that decision. The court seemed to hold that the law completely forbids strikes for the life of any contract—that is, until after the final termination date.

Looking at this section in the framework of industrial reality and in the light of the congressional intent to protect the stability of contracts, a majority of the Board concluded that this section gears the 60-day notice requirement to any date fixed in a contract for either termination or modification of the contract. So, it would prohibit a strike to modify a contract entered into for a fixed term, with no reopening provision.

But if there is provision in the contract for a reopening during its term the union can strike to obtain changes after giving the notice at the time for reopening and waiting 60 days.

What are the Board's new rules on organizing campaigns and employers' speeches?

You probably have in mind our decisions in the Livingston Shirt and Peerless Plywood cases. Again this is an example of the realistic approach to the Taft-Hartley law. The rule had been that an employer who gave a noncoercive speech to his employees on company time committed an unfair labor practice unless he gave the union an opportunity to make a speech on company time. This was the Bonwit Teller doctrine and it was expressly re-

(Continued on page 82)

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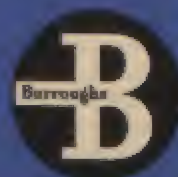


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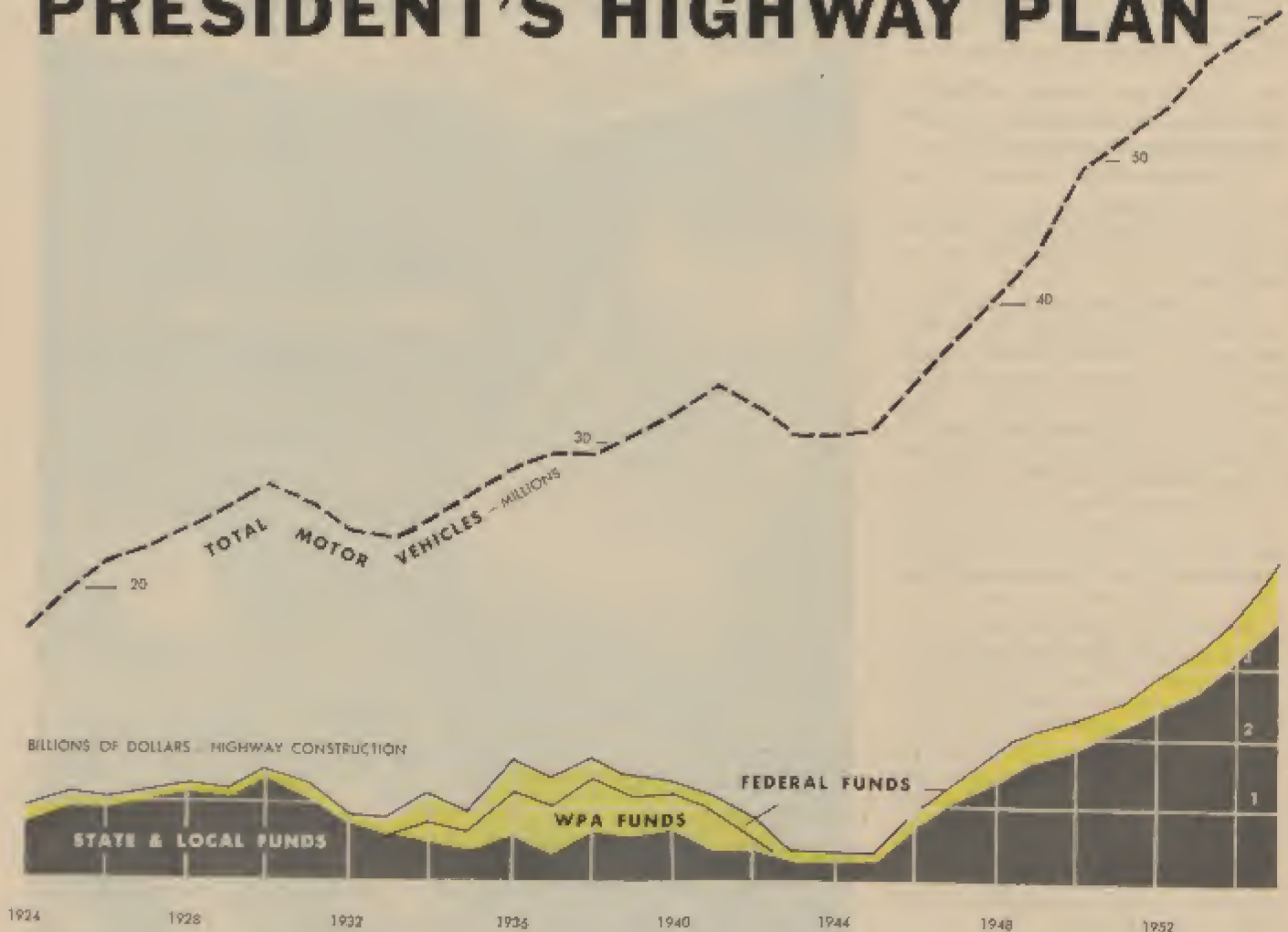
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PRESIDENT'S HIGHWAY PLAN



PRESIDENT Eisenhower's proposed multibillion dollar highway plan represents the largest construction program in history, and a sweeping change in the entire philosophy and plan for federal aid for highway development.

His proposal would require the expenditure of \$100,800,000,000 by the federal government and the states. It also would require the states to turn over financial responsibility to the federal government for modernization of 37,600 miles of their major trunkline highways. This is one of the major matters before Congress this year. Approval of the plan might mean provision of \$25,000,000,000 in federal money for a complete revamping of the Interstate System within ten years.

Briefly, the plan of the President seeks to double the normal expected rate of construction of all streets and highways for a ten-year period with the U. S. government taking over increased responsibility for the most important part of the network.

It is based on a survey by the state highway departments which estimates \$100,800,000,000 construction required during the next ten years to bring all roads abreast of traffic needs. The parts making up the total are: Interstate Highway System (37,600 miles), \$23,200,000,000; other federal-aid highway systems (679,800 miles), \$44,900,000,000; other roads and streets (2,582,000 miles), \$32,700,000,000.

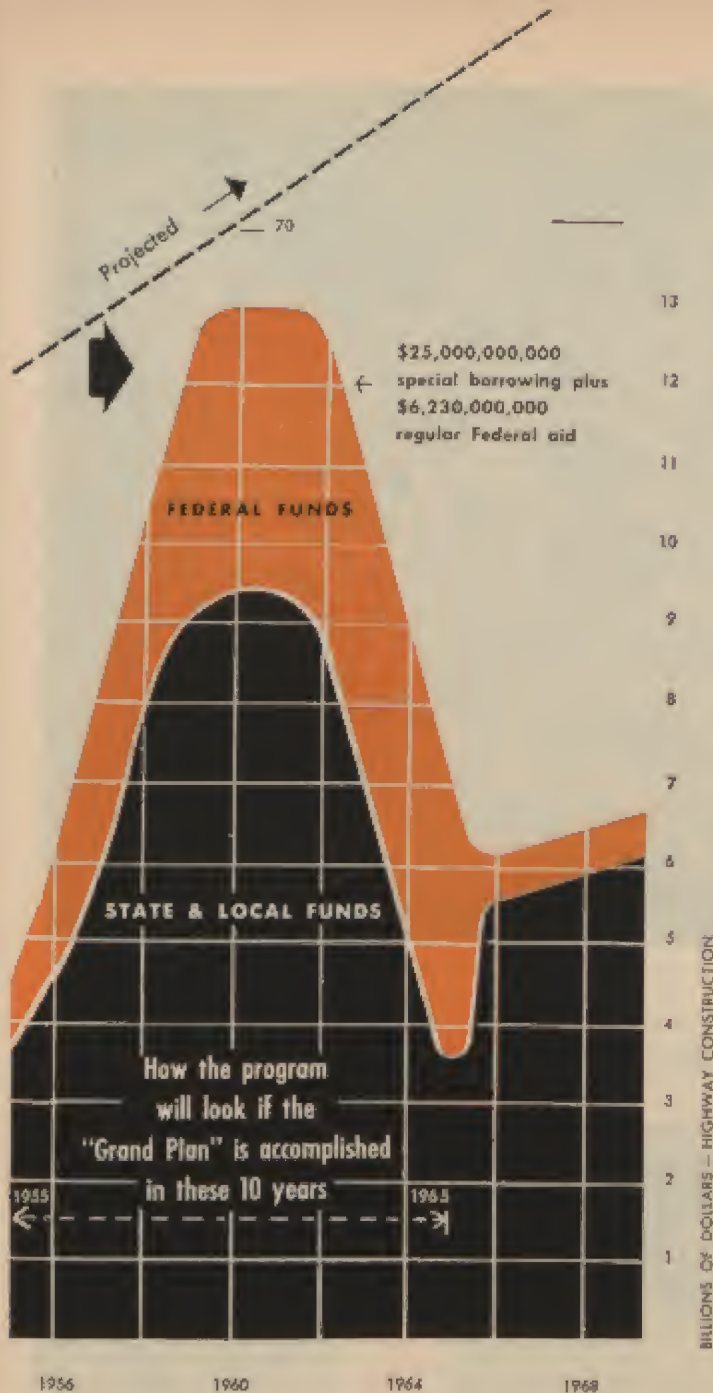
Gen. Lucius Clay, chairman of the board of Continental Can Com-

pany, heads the special Presidential Advisory Committee working out the financial plan. So far, it has dealt primarily with the federal portion and calls for:

- ▶ 1. Issuance of special federal bonds to provide \$25,000,000,000 in ten years for reconstruction of practically the entire Interstate Highway System. States would continue to build, maintain and operate the system, but would not match these federal funds as they have in the past. States would put up approximately \$2,000,000,000 in ten years.
- ▶ 2. Continuance of the regular federal-aid program, on the current matching basis, for the other 679,800 miles of highways in the federal-aid system. Federal aid would total \$6,230,000,000 in ten years.

The Eisenhower plan is based on surveys which estimate that \$100,800,000,000 in construction will be required during the next ten years to bring all roads abreast of traffic needs

BY HENRY K. EVANS



Congressional approval of basic plan could provide sharp upswing in federal aid in next ten years (left). Annual rate of spending is not determined but \$25,000,000,000 for re-vamping of Interstate Highway System and regular aid of \$6,230,000,000 might follow the approximate curve for years 1955-1964

The federal government would thus put up roughly one third of the total construction program as compared to a current 17 per cent.

The plan is based on a long look ahead at the prospects of a dynamic growing nation numbering 200,000,000 people by 1970 and demanding road space for 40 to 50 per cent more motor vehicles than exist today. It is founded on the belief that America's military and economic strength depends on broad straight traffic arteries connecting every major city—ready to carry troops and weapons in war as well as the commerce of peace.

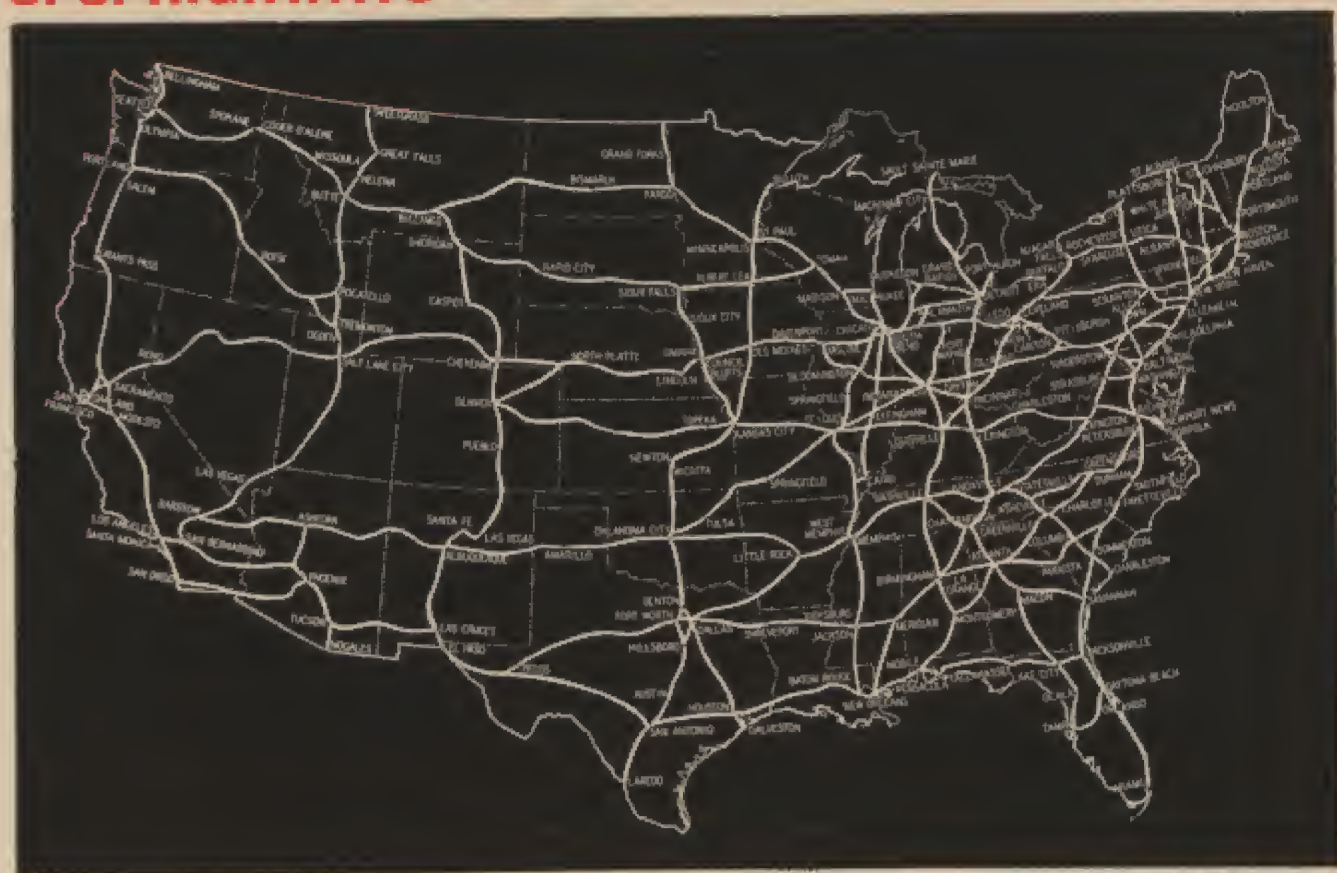
President Eisenhower's insistence on seeing the plan through is said to stem in large measure from his European war experiences where he

saw how effective roads were in serving the military forces. He has made it clear that his interest does not stop at interstate highways. The President counts heavily on the benefits to accrue to secondary and farm-to-market roads through the diversion to these routes each year of hundreds of millions of dollars of state funds no longer required for the Interstate System.

There is ample economic justification for stepping up road building. America's investment of \$80,000,000,000 (in 1954 dollars) in roads over the past half century has dwindled to a current worth of half that amount, the U. S. Commerce Department reports, and for the past ten years obsolescence has kept pace with new building so that total

investment hasn't increased appreciably. If roads were adequate today, 50 per cent more people and goods might move over our highways, says Dr. Robinson Newcomb, consultant to the President's economic advisers.

Viewed against the backdrop of all economic activity, highway building has shrunk markedly. Since 1931, highway construction, as a percentage of gross national product, has gone steadily downhill, reaching bottom in 1945 at slightly under 0.17 per cent. It came back to 1.05 per cent last year, but this is still considerably below the 1.38 per cent averaged from 1929 to 1936. If highway construction were at that same relative level in 1954, the construction total



U. S. BUREAU OF PUBLIC ROADS

INTERSTATE HIGHWAY SYSTEM

On these roads the President would spend \$25,000,000-000. This would replace inadequate highways, extend present 37,600 miles to the 40,000 miles previously authorized



would have been slightly more than \$4,900,000,000 instead of \$3,700,000,000.

The proposed \$100,800,000,000 highway program represents 2.3 per cent of the expected gross national product during the next decade.

Almost half of the nation's rural roads are still without an all-weather surface and there are more than 1,000,000 miles of dirt roads.

Currently, 64 per cent of the 717,000-mile federal-aid system is classed as substandard. And out of 3,300,000 miles of roads and streets, only between 3,000 and 4,000 miles (about one-tenth of one per cent) are of modern, controlled access design.

One of the most important groups to line up behind the Administra-

tion's highway plan is the Governors' Conference. Only a year ago, the governors were urging Congress to repeal the two cent federal gasoline tax, leaving this field of taxation to the states. Governor Walter J. Kohler of Wisconsin, speaking for the Conference before a meeting of the U. S. Chamber of Commerce, acknowledged the need for continuing federal aid in the 13 western states with vast federally owned land areas and low motor vehicle registrations, but said, "However, many states including my own should expect to receive no federal aid whatsoever under our proposal."

The governors had long been disgruntled because federal motor vehicle excises on fuel were taking

more out of the states than the federal-aid program returned. In the past decade, federal excises on motor fuel paid by highway users have netted the government \$5,455,000,000 whereas the regular highway federal-aid payments to the states have been only \$3,651,000,000.

The President's proposal which, in effect, would eliminate the gap between federal gas tax collections and federal aid, caused the states to modify their attitude.

City officials also endorse the President's program. They look to the federal program as a means of getting more help on expensive urban expressway construction. The Administration plans to add another 2,400 miles of urban routes to the existing 37,600-mile system to

bring it up to its full 40,000-mile authorized extent.

The state highway officials, the motor vehicle manufacturers and the road building industry have offered strong support for the plan, particularly the multibillion Interstate System expenditure.

"The present highway emergency in America makes it mandatory that the Interstate System be rushed to completion in the next ten years—at the present rate of improvement the job will not be done for half a century," warns the Automobile Manufacturers Association.

The President's highway plan has its critics.

The American Farm Bureau Federation, for instance, told the Clay Committee that the Federation "does not consider the highway situation so hopelessly inadequate as to warrant the tremendous expansion in federal expenditures that is proposed." It recommended a reduction in the total costs of highway construction borne by the federal government.

Representatives of the petroleum industry and of the railroads have questioned the size of the program, too. The railroads advocate reducing federal financial aid to a minimum.

The Virginia Farm Bureau Federation Secretary, Maury Hubbard, has criticized the plan on the basis that the states are in a better financial condition than the federal government, with less than \$10,000,000,000 total debt compared to a federal debt of \$271,260,000,000.

Mr. Hubbard has commented that "if we could remove the suction pump of federal taxation from motor vehicle fuel now amounting to one-fourth of the total tax collected on such fuel here in Virginia, we should, with some increase in our state rate, be able to meet our highway expansion needs on a continuing pay-as-you-go basis."

Some practical questions have been asked: Do we have enough engineers, skilled road builders, and equipment to undertake the contemplated program?

The American Association of State Highway Officials says that a survey by the states shows that potential construction capacity is now close to \$5,000,000,000 a year, exceeding current construction by a third, and could be expanded to \$9,000,000,000 inside of five years. That would be sufficient to handle the President's program. A ten year accelerated program and higher salaries will attract engineers into the highway field, the association

says. At its recent annual meeting the association raised its recommended minimum salary schedule to \$4,000 for graduates just out of college, \$12,000 for assistant state highway engineers and chief division heads, to a top of \$17,000 for state highway engineers.

Availability of road building materials is another consideration. Could industry meet the sharp increase in demand for steel, cement, and machinery?

A study of the materials problem has shown that, except for occasional spot shortages, industry can supply the requirements for the President's plan. A Clay Committee spokesman points out that a program of definite size and duration encourages the orderly expansion of industrial capacity as the regular federal-aid authorizations, providing funds for only two years ahead, do not.

More serious is the question of financing. Majority opinion favors a borrowing program by which the \$25,000,000,000 for the Interstate System will be raised through sale of bonds. But this immediately requires a method of amortizing the bonds. Here the plan can run head-on into either of two road blocks.

If the faith and credit of the nation is pledged, then the plan increases the national debt, which is not only undesirable but a practical impossibility with the present fixed federal debt ceiling.

To take the borrowing outside the national debt would require a new government corporation or authority which could issue special bonds. This would keep the plan clear of the debt obstacle, but could steer it right into the second road-block—linkage. The President's advisers have considered the idea of pledging all or part of the revenues from the federal gas tax to amortizing 20 to 30 year three per cent serial revenue bonds. Thus federal aid would be linked to the gas tax. It has been estimated that federal gas tax receipts would not only amortize \$25,000,000,000 worth of borrowing for interstate system improvement but would provide enough extra cash to continue the regular federal-aid program at the present level for the other parts of the federal-aid system.

There will be strong resistance to increasing the national debt but rough going, likewise, via the linkage route. The President hopes to steer a path between these obstacles with a special corporation whose borrowings—outside the statutory debt limit—would be paid back from future appropriations.

Highway user groups approve the spirit of the President's highway plan, but are aware that its cost may be assessed against them in federal fuel taxes and other user charges, through linkage. The American Automobile Association and the National Association of Motor Bus Operators favor the interstate highway improvement but insist that it be financed from general funds. Farm groups, too, take a dim view of the federal gasoline taxes. Non-highway users of motor fuel receive a refund on state fuel taxes but not on the federal levy.

Farmers, aircraft and boat owners and others who pay the federal tax for fuel used off the highway see little sense in having their tax payments tied to a highway improvement program.

Federal gas tax revenues, like returns from excises on liquor, tobacco, and other products, go into general treasury funds. Organizations working for their repeal have continually reminded Congress that these taxes have never borne any relationship to highway federal-aid appropriations, that they were instituted as temporary means of swelling the federal treasury when money was desperately needed for relief measures in the 1930's. The road users resist strenuously any plan to continue them or to link them and federal appropriations.

However, the trucking industry has begun to depart from this philosophy.

John Lawrence, managing director of the American Trucking Associations, Inc., recently announced his industry's backing of the plan to earmark federal automotive excise revenues for highway aid.

"Let's be practical," he said. "Since it looks like we are never going to get these taxes off the books, then the least we can do is to plow this money back into road improvement."

Fiscal experts generally oppose such earmarking of governmental revenues. They ask: Where will it stop? If the road users' excise money is turned back to them in benefits, they ask, how long will it be before the boat owners want the excises they pay segregated and applied to waterways, and the radio and TV set owners demand their purchase excises be set aside for promotion and regulation of the airways? The airlines already have asked Congress to exempt their portion of the gasoline tax and consider it as repayment for federal spending on airports and naviga-

tion aids. Another question to be settled in the Administration's highway plan is the role of toll financing. The plan will largely determine the future of the toll road in America. Any substantial increase in federal financial support for non-toll highways on the Interstate System could slow the spreading toll network completely.

The Department of Commerce recently pointed out that in 1953 a fifth of all highway construction was financed through the toll method and that the \$7,600,000,000 worth of toll facilities authorized, building, or already in operation—6,000 miles in length—will alleviate a large part of the deficiency of the national system of Interstate Highways.

During 1954, investors put nearly \$1,500,000,000 into toll facility bonds and one estimate is that \$8,300,000,000 more in toll facility bonds will be offered in the next several years.

The Administration apparently contemplates no plan to kill the turnpike movement. The President has advocated enterprises which are self-liquidating. In his statement to the governors last July, he recommended that such liquidation of highway projects should be "wherever that is possible, through tolls or the assured increase in gas tax revenue."

Administration planners agree with the governors' proposition that toll road development (as well as free roads) on the Interstate System meeting the standards of the Administration's highway plan, should not be discouraged. They recommend that in the allocation of federal funds, due credit should be given for the funds spent by those states that have constructed or do construct satisfactory sections of the Interstate System either from public or toll road revenues.

Thus a state would not be deprived of federal funds if it satisfied interstate highway needs through its own resources. The governors say that such credit should go to the states for free roads they build with their own money, as well as toll roads. In addition, they would reimburse states for toll or free roads built in recent years on the Interstate System and meeting the grand plan standards.

What kind of streets and highways could the nation look forward to under the \$100,800,000,000 plan?

First, according to the specifications supplied to the state highway departments on which they based

the estimate of needs, it would completely rebuild a major part of the Interstate System. When the job was done, in ten years, these 40,000 miles of highways would be capable of carrying traffic smoothly and safely until 1974, without further widening or reconstruction. Sufficient land would be bought or reserved to meet 1984 capacity needs.

This would require widening and straightening of existing mileage or building of complete new mileage paralleling existing routes for a substantial part of this system.

New construction would be on 180 to 300 foot wide rights-of-way, with dividing strips or provision for adding such strips in the future. Access would be controlled. This means freedom from interference to through traffic from local traffic movement or roadside commercial and other activities. Sight distances would be provided for safe travel at 50 to 70 mph. top speeds. Traffic lanes would be 12 feet wide, minimum, and shoulders six to ten feet wide.

Important crossroads would be put on overpasses or underpasses—all intersections to be grade-separated eventually. Sufficient capacity would be provided to meet traffic volume demands at all but a few peak hours during the year. Grades would seldom exceed five per cent.

The Interstate System would thus receive the deluxe treatment. These highways, formally designated in 1947 in accordance with a federal directive in the Highway Act of 1944, were selected by joint action of the state highway departments and intended to serve the national defense, connect all major industrial and commercial centers, and connect at the U. S. borders with routes of continental importance. They serve 209 of the 237 cities having a population of 50,000 or more, as well as many smaller communities.

Although this system includes only a little more than one per cent of the country's total mileage of roads and streets, its rural sections serve 20 per cent of all rural traffic. Its urban sections comprise two per

cent of the city routes and carry 11 per cent of urban traffic. It passes through one-third of the nation's counties in which reside 45 per cent of the rural population. It carries most of the country's agricultural products to market and, in wartime, will be the principal artery for movement of troops, weapons and supplies as well as for evacuation of cities.

The plan would rebuild the next most important system, 200,000 miles of federal-aid primary routes and other important heavily traveled highways to take care of traffic increases for ten years from date of rebuilding.

In other words, a state highway, widened and improved under this plan in 1956, would not need further reconstruction until at least 1966. But right-of-way would be bought or reserved to meet anticipated traffic needs that will develop by 1974.

Not all of this mileage would necessarily be divided or of controlled access design. It would permit operating speeds of 35 to 50 mph, depending on terrain, at all but infrequent peak hours for 20 years from date of reconstruction. All heavily traveled intersections would ultimately include underpasses or overpasses.

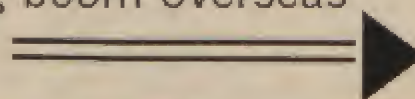
The plan would rebuild other less heavily traveled rural roads and city streets to the extent necessary to provide locally acceptable service.

On the whole the Administration's ten-year highway plan is primarily one of stepping up current financing, but with the one major exception of greatly expanded federal authority over the interstate routes.

There is no new way to pay for highways. They have been and always will be supported by taxpayers. But one thing is certain, the President's proposal has aroused the taxpayers to the realization that they need better roads and they want them. A landslide of activity, investigation and public interest is rumbling throughout the land that promises great and swift advances in America's street and highway development.

END

For a complete report on the current highway building boom overseas see page 64



hicles a year. Recently announced expansion programs in Europe will double capacity to keep pace with demand. Motor trucks are now more numerous on foreign soil than in the United States. Eleven million trucks operate outside the United States compared to our own 10,000,000. The combination of good trucks and better roads is making food and raw materials available to consumers previously inaccessible.

The world's most extensive road project, scheduled for completion soon after 1956, is the 4,734-mile Trans-Canada Highway which will provide the first modern road between Canada's Atlantic and Pacific coasts.

Spain, Italy, France and other European nations now have new limited access expressways of the most modern design. Italy is building more than 1,000 miles of expressways and present plans contemplate expenditure of up to \$500,000,000. A spider web of Spanish superhighways radiating from Madrid is 35 per cent complete. France, with one of the world's best highway systems before the war, is rapidly reconstructing damaged facilities and modernizing her system which includes more roads per square mile than any other country.

In countries such as Turkey, Ethiopia and Bolivia overland

journeys that once bogged down in the ooze for weeks are now accomplished in hours. Last year the Turkish Department of Roads, practically nonexistent a few years ago, supplanted ancient hand methods of roadbuilding with modern mechanized operations to build a record 1,682 miles of new highway.

The effect of the Turkish road revolution has been felt throughout the economy. Good roads already have boosted vehicle registrations from 8,900 in 1945 to 60,000 in 1954. The cost of truck transport between ten representative Turkish cities has dropped from more than 15 cents a ton-mile to less than nine cents. Travel time has been cut in half. The United States lent 25 highway specialists to make this achievement possible and granted \$41,000,000 to help purchase road machinery and motorized equipment.

Ethiopia has undertaken a vast roadbuilding program with the help of 35 specialists from the United States. Improvement of the 535-mile main highway from Addis Ababa to Assab on the Red Sea has reduced truck travel time from two weeks to two or three days. From Addis Ababa to Dilla, 230 miles of new road have tapped rich coffee country and reduced transportation time from as long as five weeks to one

day. The bus business flourishes.

Burma has given high priority to road construction to tap forest and mineral resources and rice producing lands. In Nicaragua the new Leon-Managua highway is encouraging cotton production and giving salt producers access to market. Trucks on the 350-mile route from Cochabamba to Santa Cruz in Bolivia now bring fertile food producing areas closer to Bolivia's urban centers. The road, financed jointly by the Bolivian Government and the Export-Import Bank, was built with 867 pieces of motorized equipment.

In Venezuela, the spectacular mountain expressway from Caracas to La Guaira, built at a cost of \$6,500,000 a mile, is called the greatest engineering feat in Latin America since the Panama Canal. The six-lane toll highway replaces a spine-tingling route that had 365 hairpin bends in 19 miles. Engineers had to build 36 miles of mountain roads just to get equipment to the site. The road has three of the largest pre-stressed concrete bridges in the world and two tunnels, one of them a mile long.

For American business there is no mistaking the effects of the revolution on the highways. In 1954 the United States was exporting 16 per cent more motor vehicles than the

MILES

SAO PAULO

1955

Five years later new Rodovia Presidente Dutra highway uses American-style clover-leaf and raised center strip. New roads in Latin America are opening areas long inaccessible



ERWING GALLOWAY



year before, and truck shipments to foreign customers were running 40 per cent ahead. Roadbuilding equipment continues in record demand throughout the world.

But this is only part of the story of what U. S. industry is doing to put the world on wheels. American manufacturers are producing vehicles abroad designed specifically for overseas needs. General Motors has manufacturing and assembly plants in England, Germany, Sweden, Belgium, Switzerland, South Africa, Australia, New Zealand, Mexico and five South American countries.

In Germany G.M. makes Opel cars and trucks. In England it manufactures Vauxhall passenger cars and Bedford trucks. Ford produces motor vehicles in Canada, Germany and England. Its popular English models include the Consul, Anglia, Zephyr, Zodiac, Popular and Prefect. Ford's contribution to German mobility is the Tanus. Ford assembly plants are scattered over some 20 countries from Egypt to Ireland to Chile, and Ford of Canada operates in South Africa, Malaya and Oceania. Other American motor manufacturers are also operating around the clock.

General Motors has recently announced plans for plant expansion in European countries "to keep pace with the broadening market." In England the expenditure of \$100,000,000 during the next few years will double the capacity of Vauxhall Motors, which now produces 130,000 vehicles annually. Vauxhall officials are estimating that Britain will have another 1,000,000 cars on the road by 1960. New assembly plants in Belgium and Switzerland will double capacity in both countries, and a \$70,000,000 expansion of G.M.'s Opel works in Germany will raise production there from 1954's 165,000 units to 250,000.

World motor vehicle production is more than two and a half times as great as before the war. The major producing countries after the United States are the United Kingdom, France, Germany, the Soviet Union, and Canada. Britain is the leading exporter, exporting one-third more vehicles than the U.S.

Today 85,000,000 motor vehicles roam the world's 10,000,000 miles of highways. The United States has 70 per cent of them, Europe has another 20 per cent. The remaining ten per cent are scattered over the rest of North America and the vast areas of Asia, Africa, South America and Oceania, which takes third place among the continents in number of vehicles owned. Africa has

the distinction of being the least motorized. French West Africa and French Equatorial Africa, for example, have a combined area nearly as great as the United States, yet these two territories have no more motor vehicles than Peoria, Ill.

But in many far off places the automotive boom is creating traffic conditions we usually associate with downtown U.S.A. When traffic density is measured by the number of vehicles per mile of available road, top honors go to Guam and Singapore, where there are 135 vehicles per road mile. Hawaii must cope with 84 vehicles per mile of road, and Cuba with 68. The comparable figure for the United States is 17.

In addition to the United States which has nearly 60,000,000 motor vehicles and Canada with 3,500,000, five other countries now have more than 1,000,000 vehicles. They are Great Britain, France, Italy, Australia, and West Germany. Other countries, however, show a different picture. There are more motor vehicles in Los Angeles than in all Asia. The State of California has more vehicles than Asia, Africa and South America combined.

The big economic potential that these comparisons reveal for the world's automotive industries may be seen even more sharply in the relation of present day vehicle registration figures to population. In the United States, where there is one vehicle for every 2.8 people, we can all go riding at once with the back seats empty. But in Europe

there are 39 people for every vehicle, in South America 70 people, and in Asia 683.

Within each continent there are wide variations in motor vehicle ownership. Alaska leads the world with a vehicle for every 2.5 people. In Colombia the ratio is one car per 112 persons. The number of people per car in Japan is 127 and in China 5,400.

In many ways the current world effort to get rolling is reminiscent of the United States in the '20's and early '30's, when we unrolled more than a million miles of road to usher in the automotive age. But against the primitive background typical of many foreign lands today, the present push seems even more spectacular.

The roadbuilding boom has a long way to go, however, before most countries have motor transportation systems adequate to support urgently needed economic growth. Many countries have no transportation links with neighboring nations, hence negligible trade in goods and ideas. Poor roads or no roads at all have prevented potentially rich lands from being tapped for the benefit of needy populations. In Bolivia difficult transportation makes rice grown only 125 miles from La Paz 50 per cent more costly than imported rice. Brazil finds it cheaper to buy coal from England than to haul it from its own interior mines.

The government of the United States is helping to improve the



TURKEY'S ROAD REVOLUTION

1,682 miles of new highway—modern maintenance of old—in 1954.

Vehicle registrations have risen from 8,900 in 1945 to 60,000 at present.

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The U.S. has supplied 25 highway specialists and \$41,000,000 for equipment.

roads of foreign lands as a first step toward improving economic conditions generally. Support for better highways is provided by grants through the Foreign Operations Administration, by Export-Import Bank loans, by our participation in the United Nations, and by the training of foreign engineers at the U. S. Bureau of Public Roads in Washington. The Export-Import Bank is financing roadbuilding machinery in Chile and Turkey, buses in Brazil, road maintenance equipment in Ecuador, highway materials in Nicaragua, cement manufacturing in Venezuela, automobile plants in Italy, and highway construction in Uruguay, Paraguay, Colombia, El Salvador and Liberia.

Congress has made available \$54,000,000 to hasten completion of the 3,200-mile Inter-American highway, now 95 per cent complete but still impassable in parts of Panama and Costa Rica. Congress has also voted funds to help complete the Rama Road connecting the Atlantic and Pacific Oceans in Nicaragua.

The Foreign Operations Administration, backed by the engineering staff of the Bureau of Public Roads, is financing road construction as part of our foreign aid programs in Liberia, Jordan, Tanganyika, Lebanon and in the Philippines.

Under the United Nations, the International Bank for Reconstruction and Development is stressing better roads to further its objective of increasing production and raising living standards in member countries. More than one-third of all International Bank loans last year were devoted to transportation.

In the United States it is difficult to visualize the obstacles to industry and agriculture resulting from poor or nonexistent transportation. Yet primitive methods of transportation are a primary factor in the retarded development of vast areas of the earth. The impetus behind the present effort to get the roads built to permit idle resources to be put to work offers new hope for people all over the world. Today's big push represents a continuing challenge to American interests. On selfish grounds alone the benefits of the automotive revolution to America are obvious.

According to the recent Economic Report of the President, "A policy to promote economic growth and stability cannot be limited to our domestic affairs, but must, of necessity, extend to our relations with other nations. One of the basic lessons of history is the interdependence between prosperity at home and prosperity abroad. . . ." **END**



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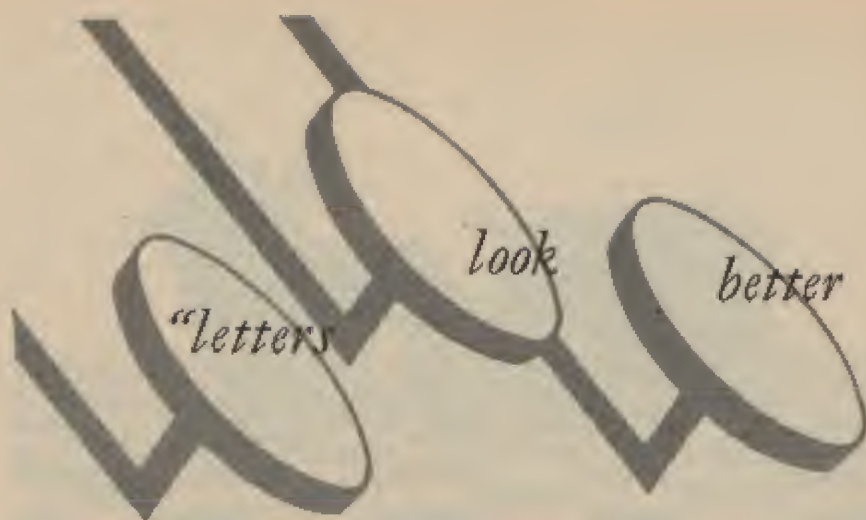
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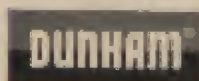
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New Trust-Busting Cycle Begins

(Continued from page 27)

definition of a monopoly more simply. He said: "Bigness of itself is immaterial. What you must ask of a combine is, how did it get that way?"

"Was it forced on the company, or was it done deliberately to eliminate competition by predatory practices?"

"This is not easily discovered. The day is gone when you can look at a corporation's books and find a conspiracy, even if one exists."

Judge Barnes spoke of "our policy of concentrating on clear cut violations which have been well established as illegal for a number of years of enforcement." He was particularly proud of the Eastman Kodak settlement which ended an alleged monopoly of color film processing.

He explained, "This illustrates our attempt to simplify complicated antitrust actions by negotiating directly with the prospective defendants before we file suit. Our complaint was drafted in June after a month of hard work. In July, we notified Eastman of our conclusions and gave a copy of the complaint to the company. We worked out an agreement with Eastman in September and avoided a long drawn-out legal battle. Eastman has a judgment with which they can live, and the government has an effective instrument to protect the public interest.

"This was forward looking of Eastman."

Of the future, Judge Barnes said, "I am worried about the auto manufacturing industry. It would be a good thing if we could work out a cooperative study with the auto manufacturers. One of the facets that concerns me is that every manufacturer must buy parts from a subsidiary of one of the 'big three.' This could be quite an advantage. I think, too, we might get an overall look at government contracts to auto manufacturers. An advantage to one could be quite a competitive factor."

The Senate Armed Services Committee criticized the Army's tank contract on the score that it unduly favored one auto company.

Another key point in the anti-trust field is the Federal Trade Commission.

The FTC chairman is Edward F. Howrey, a Washington lawyer who formerly practiced before the Commission. He told NATION'S

BUSINESS, "The statistics on mergers are meaningless, because they fail to show the size of the merging companies or whether the merger had any effect on competition.

"Today's mergers are mostly management mergers and banking is not a major factor. Many mergers now are to improve the competitive position of the companies involved and let them compete better with the leading corporation. Also, diversification is popular. Companies are looking for affiliates with raw materials or distribution channels or with new products.

"What we need today are some effective standards to find out when mergers are bad or in the public interest."

Chairman Howrey has become a controversial figure by his campaign against the *per se* doctrine which had been FTC policy for 12 years. This tenet meant that price fixing conspiracies or exclusive dealing contracts were illegal, *per se*, or by themselves. Nothing else need be proved.

Mr. Howrey believes in the "rule of reason," or proof of malicious intent. This makes the prosecutor's job much harder.

The forces in Congress lined up to question this policy are notably three.

They include the Senate Anti-monopoly Committee, a unit of the Judiciary Committee. It is moving from Dixon-Yates into a search of the entire utility field and the SEC and Federal Power Commission. The ranking members, Senators Kefauver and Langer, have asked for an appropriation of \$1,000,000. To dramatize monopoly and bring its problems close to home, the committee hopes to hold hearings in some 20 cities. Once the utility investigation is ended, the staff has a long list of areas from atomic energy to television that might be studied.

A star figure in these investigations will be Senator Kefauver, no newcomer to monopoly hunting. In the House he headed a Judiciary subcommittee study of economic concentration, was co-author of an amendment to the Clayton Act. As a Senator he took part in the Dixon-Yates hearings, and has several bills ready to introduce this session.

In our interview he said "I think one of the big issues right now is the concentration of economic influence, the great monopoly movement now under way. These monopoly trends, unless they are checked, usually result in inflation and economic distress. So I think it is important that we have a con-

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gressional investigation. It should be thoughtful, painstaking and intelligent, not trying to make a lot of headlines and creating fanfare, but finding out first what the monopoly picture is—how many companies have been taken over, why have these mergers taken place, are the tax laws at fault, or is it really an effort to meet competition.

"We should study what the enforcement agencies are doing, whether they have adequate staffs, whether they are determined to use the laws we have. We should remember, too, that our antitrust laws, the Clayton Act and Sherman Act, have been on the books a long time. Perhaps they should be brought up to date. New techniques may have created situations not covered by these laws.

A sample of the way the Tennessee sharpshooter fires away was his quick demand for an investigation of the Federal Power Commission. The day after higher natural gas rates approved by the FPC went into effect, the senator declared:

"What this decision amounts to is a further breakdown of regulation devised to control an essentially monopolistic industry, the field producers of oil and gas which are dominated by a handful of oil and financial interests."

The committee's inquiry into utilities will also revive the old debate over competitive bidding for utility financing. The SEC has been holding hearings on whether to open up exemptions.

On the House side, Rep. Emmanuel Celler has re-activated the Anti-monopoly Subcommittee of the Judiciary Committee. (The 84th Congress failed to set up the subcommittee.) Representative Celler said:

"I plan to bring before the subcommittee investigations of textiles, banking, petroleum and rubber. Obviously, we will not be able to go into all these fields this session."

Also active among the investigating groups will be the Joint Committee on Atomic Energy. A Democratic member, Rep. Chet Holifield, California, actually ripped the lid off antimonopoly investigations last summer. He questioned the Dixon-Yates contract when it first came before the Committee. This led to exhaustive Joint Committee hearings, a Senate filibuster paced by the usually conservative Sen. Clinton Anderson, D., N. M., and a showdown vote. Members of the Joint Committee split on party lines ten to eight to approve the controversial contract.

The Democrats have served notice that this was not the end, that a new

probe of Dixon-Yates and Atomic Energy Commission will come this year.

To this, the strong-minded AEC chairman, Lewis L. Strauss, in effect dared them to investigate until the cows came home. He flatly said, "I believe the proposed (Dixon-Yates) arrangement is in the interests of all the people."

Both sides now are lining up their guns for what promises to be a major war. The White House stays aloof.

The Joint Committee's investigation will broaden into a sharp search for traces of monopoly in Commission practices. One area is contracts; another is the spreading of know-how to industry through study groups. These groups were organized originally thanks to the foresight of Walker Cislcr, president of Detroit Edison. A group of corporations interested in getting knowledge of peaceful uses of atomic power get together and send key personnel to the Commission to work side by side with government scientists and managers.

Members of the Joint Committee have complaints from some small businesses and municipal utilities that have not been able to get in a study group.

To this, the AEC replies it is not its job to tell the atomic study group organizers whom they should invite; that individual companies can still apply directly to the Commission for "in service training." The AEC has shown interest in helping the smaller companies, but says it is stumped by three limitations: The trainees must pass rigid security tests, the company must show its serious intent by putting up large sums for study, and the company must send qualified personnel with considerable knowledge and prior training in the atomic fields.

The American Public Power Association, representing municipally owned utilities, was told that the company applying for training should be willing to put up \$100,000 a year for this purpose, have a nuclear physicist, chemist and metallurgist on its staff, and operate a generator of 200,000 to 300,000 kw. This was in line with the best scientific belief that atomic power would be economic only for large power systems.

The National Rural Electric Cooperative Association went so far as to prepare, with the help of AEC experts, an application to form a study group. It was approved by the general manager, but was debated at two Commission meetings without action.

The rub was that the small co-ops did not have \$100,000 a year for research and study, nor the funds to hire highly paid scientists.

So with potent backing in Congress, the NRECA is raising the issue that the Commission's training program will create an atomic oligopoly, squeezing out the co-ops and smaller utilities. Congressmen and senators from the West and South share this fear.

The co-ops are making two proposals: that the government, either through the Rural Electrification Administration or the AEC, subsidize the training of the co-ops, and that the Commission locate one of its small (5,000 kw) test reactors on a rural electric line.

Beyond these phases, the Joint Committee also may look into a section of the law requiring the AEC to advise the Attorney General of any possible antitrust violations.

The Joint Committee on the Economic Report will also be prominent among the investigators. The new chairman, Senator John Sparkman favors a study of the government bond market from November, 1952, to June 6, 1953, and the record climb of the stock market. Senator Sparkman told *NATION'S BUSINESS*, "I would like to find out if many of the big banks believed high interest rates were coming and disposed of their 2½ per cent bonds beforehand, and at what price. I would also like to learn if these same banks loaded up on 3¼ per cent bonds, rode up to 110, rebought 2½ per cent bonds at a low mark of 90 and held for a rise." Another facet of government financial policy he would question was the increase in interest rates on GI and FHA loans.

In addition, the Senate Interstate Commerce Committee may go into control of the air waves; the Appropriations Committees will look at government contracts; Ways and Means and Finance will study the effect of taxation on monopoly; and the Agriculture Committees, farm machinery and food processing.

The temper of all these investigations is likely to follow the thinking of Senator O'Mahony, who is asking for a new TNEC-type study.

"Whatever we do should be constructive, not punitive," he said. "I would be willing to forgive violations if we could get an understanding among economic groups and write an 'economic constitution.' There is no time for controversy and headline hunting. We can go broke unless we tackle this problem constructively and with the help of business. We must build!"

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PANAMA CANAL: HALF BIG ENOUGH

The Canal now carries more than 40,000,000 tons of cargo a year. It might have to carry twice that much by the year 2000. This is the story of what Canal officials are doing about it—and why

By DONALD C. SPAULDING

ARMED violence and seething nationalism have focused world attention on the countries of Central America. American officials are studying the danger thus posed to a key link in our chain of hemispheric trade and defense lifelines—the Panama Canal.

Conflict in Central America comes at a time when Canal authorities have been less concerned with possible threats to the waterway's security than with plans for expanding its peacetime trade potential.

The capacity of the Panama Canal must be doubled within the next 40 years if that waterway is to carry the cargo predicted for it during this period of rapidly expanding world trade.

That fact will demand the consideration of the Canal's directors when they meet in Washington April 9. In 1953—the latest year for which complete figures are available—the Panama Canal carried 41,145,271 tons of cargo in more than 8,000 vessels between the Atlantic and Pacific oceans. That means, roughly, that 24 ships a day, or one every hour, passed through the Canal. These vessels carried 118,000 tons of cargo each day, amounting to about 5,000 tons an hour. Volume was 5,000,000 tons and 1,000 ships greater than the previous year and four times the volume transported ten years ago.

Estimates for 1954 indicate that increased commercial shipping will continue to push tonnage figures upward. By the year 2000, annual volume is expected to be from 86,000,000 to 100,000,000 tons. The Canal already is taxed to its dependable capacity. It is worth noting that this tremendous volume highlighted the fortieth year of the Canal's operation. In 1914 the *S.S. Ancon* passed through Gatun Locks—the first ship through the Panama Canal.

The directors of the Panama Canal Company rule the U. S. government's oldest corporation. They guide the affairs of a traffic artery vital both to international commerce and to the effective defense and continued security of the United States and the Western Hemisphere. For this reason tensions among Central American nations are of vital concern to the directors—and to the Canal's future.

That they are fully aware of the need to increase the Canal's capacity is shown by their recent approval of a two-phase program designed to meet both short- and long-term requirements of commerce and defense.

The first phase, upon which work is now underway, will increase capacity approximately 25 per cent and

will be in operation before the next scheduled major locks overhaul at Gatun in 1956. Briefly, the program calls for changes in water control in the locks so that both sets of locks may be kept in operation while repairs and overhauls are being made.

The second phase, which requires extensive engineering studies, would more than double the present dependable capacity and would take several years to complete. Some studies are directed toward methods of eliminating shutdown time of locks during major overhauls which now require about six weeks of idleness every two and a half years. Other studies seek ways to improve navigability of Gaillard Cut, a narrow passage about midway through the Isthmus. A total of \$1,213,300 is provided in the budget for 1955 to continue widening the cut from 300 to 500 feet.

However, these plans are more a beginning than an end in themselves—and the Board's problems are coming from every direction.

The Canal has just completed the most successful financial year in its history. Traffic projections for the future are uniformly on the upswing, a new treaty for the operation of the Canal has been signed with Panama and major repair and construction projects are well underway.

The directors also face, however, considerations of defense and security in an area of growing nationalism and even of outright hostility. Officials are aware of the possible threat of infiltration, subversion and sabotage; of political and economic pressures, some emanating from the new treaty itself; and of the need for expansion of the Canal's facilities and various plans for achieving it. Of concern, too, are higher costs for labor, materials, routine maintenance, and the resultant possibility of higher tolls. In addition, there is the constant battle against heavy fogs.

What is the Panama Canal Company, and who are its directors who must solve these problems?

Four years ago, Congress split up the former Panama Canal organization and the Panama Railroad Company, which had jointly operated the Canal as well as the civil government of the Canal Zone, into the Panama Canal Company and the Canal Zone Government.

The Canal Zone Government is an independent government agency operating on funds appropriated by the U. S. Treasury, which are repaid annually to the Treasury by the Panama Canal Company. The



There are some 30 different proposals for a new canal. Map above shows: **A.** Nicaraguan Canal from Greytown on the east through Lake Nicaragua to the west. **B.** The Chiriqui route through the Isthmus of Panama. **C.** From the Gulf of San Blas to the Bay of Panama. **D.** Caledonia Bay to San Miguel Bay. **E.** Alternate Atrato River canals through Colombia from the Gulf of Darien to the Pacific. Congress will probably review the plans this year.



Workmen start \$3,500,000 cut-back project on Contractor's Hill to carve huge steps in cliff, prevent it from toppling into channel below, blocking traffic



Color line indicates extent of huge crack in Contractor's Hill at continental divide. Early discovery forestalled what might have been a major disaster

Company is, by law, a self-sustaining business-type public enterprise. The Government and Company together form a single-purpose enterprise and for uniformity of operation have a common head who is Governor of the Canal Zone and President of the Company. The new Company functions as did the old Panama Railroad Company, with a board of directors as the policy-making body.

The present governor and president is Brig. Gen. John S. Seybold of Topeka, Kans. Chairman of the Panama Canal Company is George H. Roderick of Grand Rapids, Mich. Other directors are the Secretary of the Army who, by law, is the sole stockholder; Admiral Richard E. Byrd, Boston; T. Coleman Andrews, Commissioner of Internal Revenue; Maj. Gen. Glen E. Edgerton, Washington; Robert P. Burroughs, Manchester, N. H.; John W. Martyn, Washington; Maj. Gen. J. L. Schley (Ret.), Washington; Ralph H. Cake, Portland, Ore.; Howard C. Peterson, Philadelphia, and T. H. Maenner and Charles S. Reed, both of Omaha.

The Company is required to reimburse the Treasury not only for the cost of the Canal Zone Government, which amounted to \$10,365,079 last year, but also for the annuity paid annually to the Republic of

Panama. The annual payment to Panama is expected to amount to almost \$2,000,000 under the new treaty, as against \$430,000 annually since 1936. In addition the Company must pay each year a return on the government's investment in the Canal as a form of interest at rates set by the Secretary of the Treasury. The rate this year has been advanced from 2.05 to 2.342 per cent and the valuation of the investment increased by \$52,000,000.

Since the incorporation of the Canal in 1951, the Company has paid interest amounting to \$23,957,000 and has reimbursed the Treasury \$31,294,000 for the cost of Canal Zone Government, plus an additional \$1,290,000 paid to the Republic of Panama. These fixed charges total \$56,541,000 for the three-year period.

The Company operates not only the Canal but a steamship line between New York and the Isthmus; a railroad across the Isthmus, cargo docks and piers, a coaling plant, oil handling plant, commissaries, a hotel, warehouses and cold storage plants, electric power, water and telephone systems, bus lines, a printing plant, restaurants, theaters, bowling alleys, housing projects and other enterprises.

Net income of the Company for the past fiscal year

came to more than \$4,000,000 after all charges. More ocean-going commercial ships went through the Canal than in any previous year, yielding tolls of \$33,302,149, an increase of four per cent over the year before. Tolls credited from U. S. government vessels amounted to \$3,888,957, a decline of 30 per cent, due largely to the falling off of an abnormally big volume of traffic as a result of the Korean war.

Income from all other maritime operations amounted to \$9,407,270, which, added to tolls, brought gross income of the Canal itself to \$46,598,376.

Internal changes and streamlining of certain functions, meanwhile, have reduced the number of employees by more than 20 per cent to a level below that prevailing before World War II when traffic was substantially lighter. Regular employees, both United States citizens and local personnel, total about 15,000.

Between now and their April meeting the directors will be watching Congress closely. In March they will, in addition, pay close attention to developments arising from the conference of the Organization of Central American States. In both areas events and decisions of vital significance may shape the Canal's future and its position as trade crossroads of the world.

Against this background, six general areas command principal attention: The dependability of traffic projections; the new treaty with Panama and the Central American political climate; continued effective liaison with the Department of Defense; plans for the expansion of the Canal—or the construction of an entirely new canal; the prospect of higher costs and increased tolls; weather conditions in the Canal Zone.

A number of traffic evaluations have been and are continuously being made. In every case, including a study based upon the experience of the much older Suez Canal, projections have tended upward. Composite projections indicate volumes ranging from just above 85,000,000 tons to more than 100,000,000 tons during the next half century.

Canal officials know, of course, that these forecasts assume no major war or political upheaval. They assume, too, a fairly constant development of the now so-called backward nations. Offsetting traffic declines following the end of the Korean war are a number of projects for economic and military aid to Asian countries, including principally India and members of the SEATO alliance. The possibility of east-west

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First, smoke it for 30 days. Then, if you don't say it's the sweetest smoking you ever had, break it to bits, and return the pieces—it won't cost you a single cent!



This new pipe will travel 4,174 miles from London so you can try it out at my risk.

When I first stumbled upon a simple way to draw mild, cool smoke from the very first puff—a way to get rid of bite and bitter taste—I knew I should share my good fortune with every other pipe smoker. How I decided to make my offer is a story in itself.

First of all, I had to go to an old-time London house to get exactly the kind of pipe I wanted made. Even then, I couldn't take time to get stores to carry my pipe. The only way I could offer it to you is by mail.

I took my pipe to a good friend, a fellow who writes stories for the men's outdoor magazines, and a pipe smoker, of course. I asked him to smoke my pipe and write an ad about it. When he said he needed time to break the pipe in, I just let it pass. I wanted him to discover for himself that the first puff is soft and cool and good.

He phoned at 12:30 that night. He had smoked the pipe and was so excited, he couldn't go to sleep until he wrote an ad. But, the next day, when he showed me what he had done, we both knew he had failed to describe the pleasures of that pipe.

He had written the same things you hear about every new pipe. No bite, no bitterness. Dry, cool smoke. No breaking in. It didn't matter that it was all true about my pipe. It just wasn't written so a pipe smoker could believe it.

Then I realized, I could no more describe the satisfaction this pipe brings you, than I could draw a road-map to the moon. There is only one way

for you to appreciate this pipe—that's lead it up and light it. So I decided to let you smoke my pipe for 30 days without risking a penny.

Now, I am running out of the space I was able to buy to tell my story. I still haven't told you about the simple discovery that makes this pipe like no other you have ever smoked. I haven't told you about the four basic laws of nature, known from the time of Aristotle, which my pipe uses to cool and filter smoke, chase bite, and evaporate excess moisture, all in one operation. I haven't told you about the exquisite briar my London pipe-maker uses. And I haven't told you how you can try my pipe for 30 days.

However, I want to send all this information to you free, and without obligation. Fill out and mail this coupon. I will tell you how you can smoke-test my new pipe for 30 days without risking a penny. Write today to me—E. A. Carey, 1920 W. Sunnyside Ave., Dept. B-B, Chicago 40, Illinois.

E. A. CAREY, 1920 W. Sunnyside Ave., DEPT. B-B, CHICAGO 40, ILLINOIS

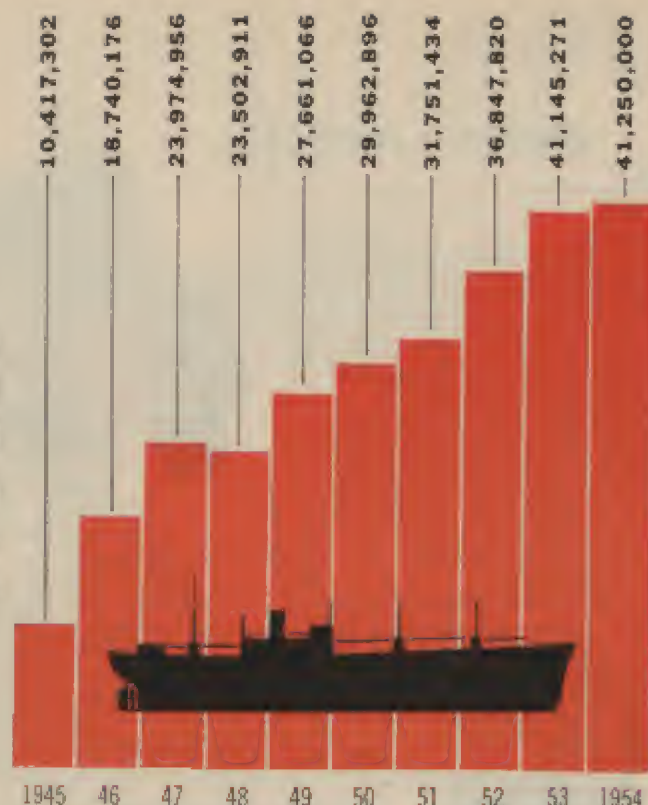
Please send facts about the Carey Pipe. Then I will decide if I want to try it for 30 days at 50¢ R. R. risk. Everything you send is free. No salesman is to call.

Name.....

Address.....

City.....Zone.....State.....

Chart at right shows four-fold growth of Canal traffic in ten years. 1954 figures estimated



trade as a further boost to Canal traffic cannot be ignored, whether the United States enters into such trade or not. A steadily growing investment in Latin America and the continuing development of natural resources there—as well as a rising standard of living—promises more traffic.

A solid prop to these prospective developments is the increase in the normal flow of goods among nations recovering from war and reconstruction and getting back on their feet in world markets.

The new treaty with Panama supplements treaties of 1903 and 1936, increases annuity payments to Panama by \$1,500,000 and, over the next ten years, provides for the return of lands to Panama valued at approximately \$25,000,000. In return, the United States will retain an air base built in World War II on Panama soil. Panama contractors henceforth will compete on equal terms with U. S. firms, where before they had to underbid the U. S. by 25 per cent or more to win a contract.

The U. S. also has agreed to equal pay for equal work for Panamanian and U. S. citizens in the Canal Zone, and has agreed to withdraw commissary privileges previously enjoyed by Panamanians living outside the Zone but employed within the Zone. Panama businessmen have charged that commissaries are unfair competition because they undersell Panama firms.

Despite mutual agreement on

most features of the treaty, Canal authorities are aware that sore points remain—and that as far as the commissaries are concerned, the sore points may fester for a long time. In addition to possible ill-feeling arising from this source, there is growing tension and even hostility in nearby countries, directed at present not so much at the United States as from one country to another. This tension has already broken out into armed violence between Nicaragua and Costa Rica and is strongly in evidence in Guatemala and even Honduras.

Such tensions carry within themselves the seeds of economic and political pressures which cannot long be ignored. The United States, trying to please its hosts and honor a treaty which grants it Canal privileges "in perpetuity," still may discover itself in the unpopular position of a colonial power, as have the British at Suez.

Terms of the new pact will be studied carefully. Legislative approval of the treaty is required both in the U. S. and in Panama and there is strong likelihood that most, if not all, of the sore points can be cured.

Canal officials always have worked closely with the Department of Defense and its predecessor departments in the federal government, as well as with the National Security Council, the Joint Chiefs of Staff and others charged with the defense of the United States and the security of U. S. commitments in other areas.

Perhaps the most eloquent com-

mentary on the effectiveness of this liaison is that the Canal has provided uninterrupted service in peace and war since it was opened to traffic in 1914—with the exception of a period in 1916 when a serious slide at Gaillard Cut closed the channel.

A network of protective devices, including radar and other modern installations, surrounds the Canal, both within the Zone itself and from islands at both the Atlantic and Pacific approaches. Constant vigilance and an excellent security system have made infiltration or sabotage in the Canal Zone extremely difficult. Yet no one claims the Canal is or can be made invulnerable to attack.

One of the thorniest problems the Canal management faces now or in the future is that of adequate expansion of the waterway's facilities. At least four distinct plans have been strongly advocated for future development. Congress probably will be called upon to weigh the merits of each.

One plan envisages a third set of locks to parallel the present two, but at some distance so that at least one set might remain in existence in the event of an attack. In effect, it would make the Canal a three-lane ship highway. A third locks project was started before World War II but abandoned in 1942.

Perhaps the most strongly and most frequently pressed project is that of the sea-level route. Ferdinand de Lesseps was engaged in this project when the French tried to dig a canal through the Isthmus of Panama in the late 1800's. Advocates of the sea-level route insist it is the most practical project from the point of security, that vessels of any size could be accommodated and that the present locks would not have to be closed for more than six weeks to effect the changeover. It might be noted here that several naval ships, including the supercarrier, *U.S.S. Forrestal*, cannot go through the Panama Canal.

On the other hand, opponents of the project say that the present Canal actually can be enlarged to any needed capacity at considerably less expense. They maintain a sea-level route would mean the abandonment of hundreds of millions of dollars worth of locks and machinery in the present Canal and that, as far as security goes in this thermonuclear age, there isn't enough difference to choose between the two.

Proponents of the terminal lakes project are vocal, too, and give every indication of pressing their campaign in the present Congress. Their

plan, briefly, would establish a large body of water at the Pacific end of the Canal, similar to Gatun Lake at the Atlantic end. This extra lake would serve as a giant parking lot for ships of all sizes and would facilitate passage of vessels in both directions to the extent that two or three times as many could negotiate the Canal in the same period as at present.

Here again, critics declare that the project would entail excessive cost with no increase in over-all security.

The costs of these projects range from an estimated \$300,000,000 for major improvements to the present Canal to more than \$4,000,000,000 for cutting through a sea-level route.

An entirely new canal, in addition to the present one, also has its supporters.

Thirty different routes have been mapped out, together with estimated costs ranging as high as \$20,000,000,000. All would involve new and highly complex treaties with Latin American countries. A Mexican route would run from the Gulf of Campeche to the Gulf of Tehuantepec. Others involve Nicaragua and Costa Rica, and there are more than a dozen projected routes in Colombia linking the Caribbean with the Pacific. The accompanying map shows most of these projects.

As if all this were not enough to

plague any board of directors, the prospect of higher costs and increased tolls for interocean commercial shipping also is appearing.

Labor and material costs for normal dredging operations and lock overhaul are on the upswing. In addition, dredging out slides last year cost the company an estimated \$300,000. New freight cars are needed for the railroad at an approximate cost of \$500,000. New electrical machinery and changes in present methods of lock operation are also on the schedule, with more thousands of dollars that must be spent.

Hardest blow of all, however, was the discovery last spring of an enormous crack in the continental divide, running down the face of Contractor's Hill. Had this crack widened any further, the entire face of the cliff might have toppled into the Canal, effectively blocking it for several months and perhaps longer. Upon its discovery, Gen. Seybold ordered immediate surveys and it was determined that the wall of the hill would have to be cut back in step-like fashion to prevent a major disaster.

Work was started in July, 1954, and will be completed this spring at a contract cost of \$3,391,000. Even with this expense and expert engineering and construction work it is by no means certain that the danger to the Canal is or can be finally eliminated.

Heavy rains and thick fogs make navigation uncertain during some periods especially at Gaillard Cut which is perilous to navigate when fog has settled. It is hoped that widening this cut, plus the use of radar, may help reduce the hazard.

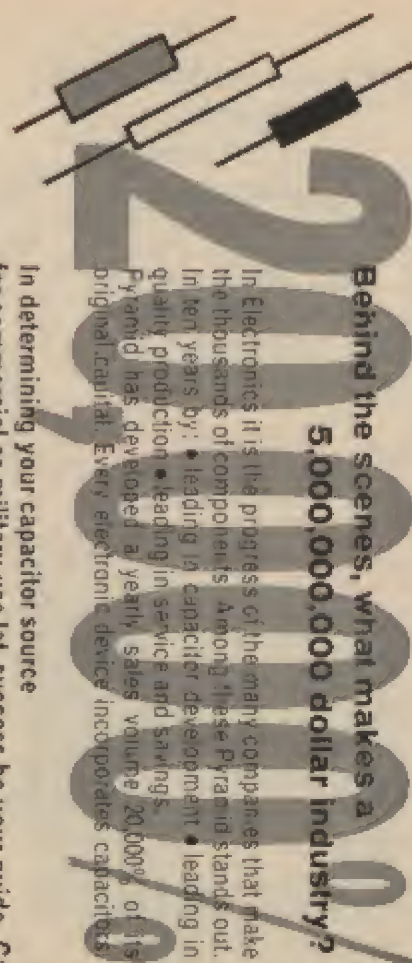
Many of the plans for the Panama Canal, official and unofficial, will be discussed during this session of Congress, either in the House Committee on Merchant Marine and Fisheries or in the House Appropriations Committee, or both.

The business community of America has a vital stake in the future of the Canal. Principal commodities carried between the Atlantic and Pacific include mineral oils, coal and coke, iron and steel manufactures, sugar, soybeans, phosphates, sulfur, paper and paper products, ores, lumber, wheat, canned food products, nitrate, bananas, coffee, wool—and scores of others.

These products eventually touch the lives of all Americans in one way or another. Many touch closely our national security programs, and hence, to a degree at last, our national survival.

END

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PYRAMID

ABOUT THE CANAL

Summary:

Original cost.....\$380,000,000
Total assets.....\$494,155,192

1914 to 1955:

Tolls collected.....\$749,385,794
Ships carried.....228,881
Tonnage792,498,782
Payments to Panama.....
\$24,280,000

Statistics:

Length.....51 miles
Highest water level.....
85 feet above sea
Channel width300 feet
Channel depth.....42 feet
Width of locks.....110 feet
Length of locks.....1000 feet
Depth of locks.....70 feet
Number of lock chambers.....6

Note:

You travel east through the Panama Canal to get to the Pacific. The Atlantic entrance is 27 miles west of the Pacific exit.

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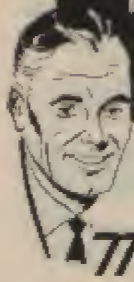
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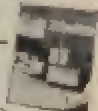
Send me free copy of Bulletin 532.

Name

Firm

Address

City Zn State



C-1734

Red Rocket Know-how Matches Ours

(Continued from page 35)

now assisting in U.S. guided missile development. I would be careful, however, not to use the term ex-Nazi indiscriminately. Most of these people were not members of the Nazi Party and none, so far as I know, were in sympathy with the evil things the party did.

What is the difference between a rocket and a guided missile?

My old Webster's Collegiate says that a rocket is a firework that is propelled through the air by the reaction of gases liberated by combustion, whereas a missile is an object to be thrown or projected. So extending this as little as possible, let us say that a rocket is any object that is propelled through space (whether or not there is air in the space) by the reaction of mass which has been carried in the object and ejected at high speed. Rocket propulsion is thus differentiated from other forms of jet propulsion in that no air is taken on board.

A guided missile is any object which is thrown, projected or propelled, the path of which is automatically corrected during the flight. Thus the MATADOR is a guided missile but not a rocket. AEROBEE is a rocket, but not a guided missile. NIKE is both a rocket and a guided missile.

One also generally speaks of a rocket engine as an assembly of all the parts necessary to produce thrust in a liquid-fuel rocket, except the tanks. The term rocket motor usually means just the combustion chamber and nozzle, and is most frequently used in connection with solid-propellant rockets in which all of the propellant is carried in the combustion chamber.

How are rockets made?

I honestly don't know where to begin on this one. Let me say briefly that the technology of the aircraft industry including engine and navigating equipment is largely the basis for guided missiles, whether rocket propelled or not. Solid-propellant rockets involve primarily techniques peculiar to the pressure vessel and explosives chemistry industries. Liquid-propellant rockets involve additional problems in hydraulics in the design and manufacture of what amounts to high-priced plumbing.

But don't think I'm going to tell you "how to make a rocket" in one easy lesson.

What fuels, metals, electrical equipment do they require?

Rockets use both fuels and oxidizers. The latter category includes liquid oxygen, nitric acid, hydrogen peroxide, and a number of other liquids as well as various oxygen-rich salts like potassium perchlorate and ammonium nitrate. The fuels are liquids like gasoline, kerosene, or alcohol, and various artificial resins which are rich in carbon and hydrogen and which have a plastic or rubbery physical appearance.

In addition, there are both liquid and solid compounds which decompose spontaneously at high temperatures and pressures, sometimes in the presence of a catalyst, thereby releasing large quantities of hot gas. These latter are known as monopropellants. Metals and electrical equipment are similar to those required by the aircraft and jet engine industry.

What are some of the performance records of rockets?

I believe the record for both speed and altitude is still held by the two-stage BUMPER which was "cobbled up" under General Electric direction using a German V-2 and a rather completely reworked WAC, CORPORAL. On Feb. 24, 1949, at the White Sands Proving Ground this rocket ascended to an altitude of about 250 miles and at the speediest part of its trajectory traveled at about 5,000 miles an hour.

How old is rocket development?

Rocket development is believed to have begun in the Twelfth or Thirteenth Century with Chinese experiments. Gunpowder rockets were used for warfare in Italy in 1379, and have been used intermittently for this purpose ever since. Notable in this field was the work of William Congreve, in England beginning about 1804 or 1805. Modern liquid-propellant rocket development can really be said to have started with the work of Dr. Robert Goddard in the early 1920's.

Do we depend upon foreign countries for rocket materials?

I cannot, at the moment, think of any material essential to rockets and guided missiles which cannot be obtained in adequate quality and quantity in this country. The only possible exception might be special alloying elements for high performance metals. However, metallurgy

has now developed to the point that if one element is unavailable, others can be substituted with little or no loss in performance.

Do the Russians have all the resources and materials they need?

I'm afraid they do. As I mentioned before, it would be advisable to assume the state of development of their technology comparable to ours.

Are we producing an adequate number of rocket experts?

No, I believe our rate of training new engineers and scientists in all categories is far too low, perhaps so low as ultimately to be the cause of our downfall. There is really no such thing as a "rocket expert." What we need are smart mechanical engineers, electrical engineers, chemical engineers, aerodynamicists, stress analysts, physicists, chemists, and so on, well trained in the fundamentals of their trade, and given an opportunity to work at rocket and guided missile development.

To what extent is American industry participating in rocket experiments and development?

Most of the aircraft industry and a large part of the electrical and automotive industries are actively engaged in rocket and guided missile development. There is no lack of desire on the part of American industry to get into this act.

Can you tell us something about GE's work in this field?

GE has been working for ten years under an Army Ordnance development contract covering a broad range of projects, including technical supervision of the V-2 firings, the BUMPER vehicle, several different HERMES missiles and supporting research in ramjets, high-energy fuels, and combustion stability. This contract was completed at the end of 1954 and work started on several other projects which cannot as yet be described. GE normally subcontracts a large part of its work including large airframe components.

What future do you see for rocket engines?

Some of the techniques developed by the rocket industry such as solid and liquid propellant gas generators, fractional combustors, etc. may have a considerable influence on other industries, such as chemicals, transportation, petroleum. However, I believe that the principal future of rocket propulsion as such, will lie in its military application, and possibly—at some future date—in some form of space travel. I do not believe that rocket engines will ever be used to

power ships, locomotives or automobiles on a commercial basis. They are, however, already used on cargo planes for auxiliary thrust at take off and I expect this use on aircraft to be extended somewhat.

What is the program and purpose of the American Rocket Society?

The Society's purpose is to aid and encourage the development and application of the principle of jet propulsion as applied to rockets, aircraft and other appropriate devices; to aid and encourage the development of the sciences and engineering techniques involved, and to create increasingly wide interest in the field of rocket and jet propulsion among both technicians and laymen to the end that jet propulsion in all its forms shall rapidly be developed for the good of man.

I would like to emphasize that the American Rocket Society today is primarily a professional engineering organization, specializing in the design, development and application of jet propulsion, and not a science fiction organization, solely devoted to promoting a trip to the moon! Sure, we are interested in space flight, but not to the exclusion of all other applications, and certainly, I hope, on a sound engineering basis.

Do you expect a rocket trip to the moon to be accomplished within the next 25 years?

I honestly believe the technical problems involved in sending a man to the moon and bringing him safely back again could be solved in 25 years. Unless some greater incentive appears than I now foresee, I doubt if such a trip will be made in this time. I do believe, however, that unmanned space flight will have been attempted in less than 25 years.

Does atomic energy offer any potential as power for space flight?

Atomic energy used simply as a heat source is not a very attractive means of rocket propulsion as compared with the best chemical propellants. The reason is that the heat must be passed through a solid-gaseous surface or heat exchanger. The weight of this device, together with its practical temperature limitations prevent the rocket designer from taking advantage of the almost limitless energy available from nuclear reactions. Remember that all of the mass expelled by a rocket must be carried on board whether nuclear energy is used or not. (This limitation of course does not apply to air-breathing engines.) I believe it will be a long time at any rate before nuclear powered rockets can compete with chemical-powered rockets. **END**

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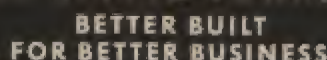
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Irrigation Brightens Dixie's Future

(Continued from page 49)

at all gave 8.3 bushels of nubbins. Veteran farmers were flabbergasted when the national corn-growing champion of 1952 turned out to be 13-year-old Lamar Ratliff, of Baldwin, Miss. In a year of severe drought, Lamar grew 214 bushels of corn on one acre. He used irrigation.

At Florida's Ona Experimental Station, cattle supported on land not irrigated increased in weight an average of 17 pounds per acre. Irrigated pasture land, however, was so productive that cattle supported there increased an incredible 1,050 pounds per acre.

Other experiments have proved equally astounding. W. D. Workman, of Timmons ville, S. C., increased his tobacco yield by 498.7 pounds an acre with irrigation. In Kentucky, the tobacco yield was increased by an average of 561 pounds per acre on 42 farms in 19 counties.

Experiments in Alabama with 18 vegetable crops conducted over 14 years have proved that irrigation increases yields by 38 per cent. The produce is of a higher quality as well. At Clemson, \$40 more per acre has been cleared on alfalfa above the cost of irrigation. Tests in Tennessee show a net gain of \$121 per acre of irrigated pasture and Georgia reports twice as many cows can be supported on such land.

The case for irrigation was summed up succinctly by a county agent in Florida:

"You always can tell the citrus farmer who irrigates from the one who doesn't," he told Mr. Eleazer. "He drives a Cadillac. The other guy drives a beat-up jalopy."

Unmistakable evidence of an awareness of Mr. Eleazer's drive for irrigation can be seen and heard at every turn in South Carolina. At the Clemson House, where I checked in recently, I asked the bellman, who was obviously a student at the college across the road, how things were going.

"Everything would be fine if it would only rain," the boy answered. "We won't have to worry about that in a few years, though. We won't have to depend on the weather when we have irrigation."

The following day the paper featured the prize-winning exhibit at the Anderson Fair, a model of a farm bearing the inscription: "Irrigation—The Missing Link." The Commercial Bank & Trust Company of South Carolina ran a page advertisement in the Columbia

State urging the legislature to enact laws making water available for irrigation. "This bank and the other banks in the State of South Carolina have plenty of money to loan good, substantial farmers to buy irrigation equipment, if water can be provided," the ad read.

"Such measures must be taken to protect the farmer and the economy of the country," Mr. Eleazer maintains. "Irrigation insures the good harvests a farmer requires today to meet high costs of production. In the old days, all a farmer needed was a good, strong arm and a compost heap for fertilizer. If a drought wiped out his crops, he tightened his belt, his family wore patched clothes, he put off painting his house and maybe his children didn't go to school. He managed to tide himself over until the next year by selling timber or a few head of livestock.

"But those days are gone forever. The farmer now has a heavy capital investment in machinery and improvements on his land. He no longer can afford losses. Farming is big business today. To realize his potential, a farmer must be assured of water when he needs it and irrigation is the only solution to his age-old uncertainty. Without it, he faces the specter of ruin constantly."

Mr. Eleazer's argument is irrefutable. The farmer is a businessman, with an average investment of more than \$14,000 in land and property. That is somewhat more than the corresponding figure for many small retail stores.

Happily, if somewhat belatedly, the government has taken action to safeguard the farmer's heavy stake against vagaries of the weather. Last year a bill introduced by Sen. James O. Eastland, of Mississippi, was passed granting loans to farmers for digging wells and purchasing irrigation equipment.

Previously, such credit was available through the Farmers' Home Administration only in 17 western states under the jurisdiction of the Bureau of Reclamation.

We make progress slowly sometimes. The Mormons, before 1850, had begun to convert the great deserts beneath the endless mountain ranges into a latterday Land of Goshen by diverting water from City Creek into the fields around Salt Lake City. By 1860 the U. S. Census listed 752 private irrigation enterprises in the West, and they gave impetus to the expansion of the nation's geographic frontier to the Pacific.

Irrigation can confer similar advantages upon the country by creating new economic frontiers in the South.

END

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Labor Board Stresses Realism

(Continued from page 57)

jected by the Court of Appeals. In our Livingston Shirt decision we simply accepted the court decision.

At the same time we felt that some limitation had to be placed on employers in their use of company time to lecture employees during organizing campaigns just preceding Board elections. So we adopted the rule in the Peerless Plywood case that no such speeches should be given within 24 hours just before an election. This gives the employees at least 24 hours to digest the election propaganda from both sides.

Has the new Board made any important rulings concerning secondary boycotts?

Yes. There are always difficult problems arising in this area. Perhaps one of the most discussed rulings we have made under this section was in the Washington Coca Cola case. The practical nub of the secondary boycott cases is where and when a union may picket.

In this particular case the drivers' union was on strike and picketing the bottling plant. But it also extended its picketing to a number of retail stores handling the drink. The pickets carried signs bearing legends urging "friends" who entered the store not to buy the drink, but the pickets did not limit their activity to consumer "friends." The Board found that they also used these signs to persuade drivers for other companies not to make deliveries to the picketed stores.

Moreover, the Board found this "friends" picketing had substantial effect upon the employees of the retail store because the pickets patrolled doors used in common by consumers, store employees, and drivers for other suppliers to the store. The Board held unanimously that this clearly violated the law's ban on secondary boycotts. In doing so, we set forth the general rule that "this section proscribes picketing at the separate premises of employers who are not a party to the picketing union's primary labor dispute."

Aren't there exceptions?

Of course there are. One is the case where the actual focus of the labor dispute is on the premises of another employer as, for example, in the case of a dispute with a subcontractor working on a building project.

In the Stover Steel case, to illustrate, we held picketing legal under

these circumstances provided it was plainly and clearly directed to only the subcontractor involved in the dispute. This, I believe, was the first case in which the Board has ever found picketing at a construction site to be lawful under the section intended to curb so-called secondary boycotts.

What about contracts which permit workers to boycott what is called "hot cargo"?

"Hot cargo" contract clauses were the subject of a recent Board decision. As you know, a "hot cargo" clause is a provision of a contract between an employer and a union which provides that the employees may refuse to handle goods coming from or going to any other employer designated by the union as "unfair," and that such a refusal will not be deemed to be either a violation of the contract on the part of the union or a cause for discharge of the employees.


In the recent McAllister case, a majority of the Board held that the making of such agreements is permitted by the law, but Board members Rodgers and Beeson would have held such a clause to be invalid. I disagreed with them on that point, but I also disagreed with my other two colleagues, Board members Murdock and Peterson, who held such a clause to be a valid defense to a secondary boycott charge.

What was your position?

I took the view that the making of a "hot cargo" agreement was a voluntary matter with the secondary employer involved, and if he wanted to abide by such an agreement he could; it certainly would not be unlawful. But in this particular case, the secondary employers actually directed their employees to go ahead and handle goods for the employer designated as "unfair." So, in this case, my view led me to join with Board members Rodgers and Beeson in finding that the union had violated the secondary boycott ban under these circumstances.

What rule do you now apply with respect to separate representation for craft unions?

In the American Potash decision we established the general rule that craft severance will be limited to genuine craftsmen who are being sought for separate representation by the traditional union of their

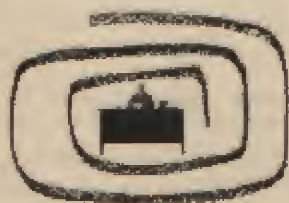


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craft. We have eliminated the old "craft nucleus" theory by which a union could get a few craftsmen and then build up a sizable bargaining unit by taking any other employees working with them. This often converted craft severance into a sort of bridgehead for raiding the plant-wide unit.

Will the new rule tend to encourage craft unionism?

I think quite the contrary. This is another decision that seems to be generally misunderstood. While the American Potash policy gives full recognition to genuine craft unions seeking their own craftsmen, it has eliminated some of the splitting up of bargaining units that has been going on in recent years under the guise of craft unionism but among employees who actually could lay no claim to being craftsmen. It has also curtailed efforts by a single union to split off multiple crafts.

What is being done now about communists in unions?

On this, the Board has undertaken various programs, but each time we have run into a judicial stone wall in our efforts to make the noncommunist affidavit mean something more than a formality. Of course, there have been a few convictions for the filing of false affidavits, such as that of Ben Gold of the Fur Workers' Union.

But I regret to say that I regard the law as being largely ineffective on this point. At the present time I do not think it is worth the cost of administering, which, incidentally, is quite heavy.

What about the Communist Control Act passed by the last session of Congress?

I hope it works. I think it is well conceived in principle, but I am afraid enforcing it may be stultified by almost interminable litigation.

As you know, under this law the Subversive Activities Control Board has the power, after a hearing initiated by the Attorney General, to designate unions as communist controlled. The orders are subject to judicial review, and I am sure that legal roadblocks will be thrown up at every stage. When the order of the Subversive Activities Board becomes final, then and only then does our Board have the power to withhold the benefits of the law from unions so designated.

This approach attempts to reach the real seat of the problem—the communist-controlled union itself. And that is true whether the employee members of the union have merely stood by and let the com-

munist run things, or whether it is a case in which the communists have seized control and have the union members more or less at their mercy.

In either case, it seems to me that the new law represents the right approach. My only concern is whether it can be made truly effective.

What about action on this matter by your Board?

As it now stands, aside from the new law, the matter of eliminating communists is pretty much up to the unions themselves. The most constructive thing the Board has been able to do is to modify our rules on elections to provide employees in these situations more freedom to leave communist-led unions.

That was done in the Lawrence Leather case. That situation involved the disaffiliation of a Kentucky local from the Fur Workers' Union. There, the Board adopted the rule that we would not consider a contract to be a bar to an election where a local union has broken away from a parent union because it was expelled from a national federation.

Why is the job of general counsel of the NLRB considered so important?

He is the chief prosecutor of unfair labor practices. The Taft-Hartley law specifically gives him "final authority, on behalf of the Board" as to the investigation of charges and the issuance of complaints in unfair practice cases and the prosecution of these cases before the Board. In short, only he has the power to bring any action against either a union or an employer. As a consequence of this power, he also has authority to make informal settlements of cases.

How long does it take to get a decision from the Board?

That, of course, varies with the type of case. Unfair labor practice cases take much longer than election cases. That is because of the greater complexity of the questions involved and the judicial nature of the proceedings. During the past year, the Board has averaged a little longer than a year in processing unfair practice cases and about 90 days in handling election cases.

How much does it cost to run the agency?

Last year—that's fiscal 1954—it cost \$8,786,000. This year—the fiscal year ending June 30, 1955—our appropriation from Congress is \$8,400,000.

END

How to keep your business alive in case of the death of a partner!



The *personal* wounds that a partner's death causes—the anguish, the emptiness, the aloneness—can be healed by time. *But not the business wounds that all too often follow.*

For if your partner's holdings are inherited by disinterested relatives who insist on selling out—or, even worse, by relatives who want to run things themselves—all that you built over the years can quickly be torn down.

What can you do about it? First, ask your attorney to draw up a Buy and Sell Agreement for the purchase

of a deceased partner's shares. Then call in The Travelers man for *Partnership-Life* insurance which will provide the *money* to make the purchase.

You'll find that *Partnership-Life* costs less than the interest alone on what you would have to borrow (*if* you could borrow it!) to make the purchase yourself.

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FOOD SURPLUS HEADS OVERSEAS



PROBLEM: How to sell surpluses abroad, without dumping but with maximum benefit to needy peoples. Partial solution lies in Agriculture Department's fund to aid private exporters

A VIGOROUS preparation for the movement of United States surplus farm products into international trade began a few months ago, and shows promise of increasing exports of agricultural commodities by the year's end.

The faster export pace is in a great measure due to the Agricultural Trade Development and Assistance Act passed by the Eighty-third Congress. Under the Act the United States appropriated \$700,000,000 to assist private exporters in selling surplus farm products abroad for foreign currencies.

The plan will help bridge the dollar gap between the United States and countries where dollar credits are short. Its main purpose is to cut sizable chunks out of our mountainous pile of surplus farm products, and at the same time prevent "dumping."

United States agricultural surpluses held by the Commodity Credit Corporation now total more than \$6,000,000,000 made up of commodities and commodity loans. Before the 1955 fiscal year ends on June 30 commitments may reach \$7,000,000,000 or \$8,000,000,000.

Translate these billion figures into something more concrete. As of Nov. 3 the Commodity Credit Cor-

poration owned 377,000,000 pounds of butter, enough to feed our country for four months. The Corporation owns 395,000,000 pounds of cheese, enough for our 164,000,000 people for six months. It also owns 550,000,000 pounds of cottonseed oil, or enough to make more pounds of margarine than it has of butter.

The Commodity Credit Corporation has on hand enough wheat—743,000,000 bushels—for about a full year's domestic use. Also included in its holdings, but by no means all of them, are 487,000,000 bushels of corn, 2,000,000 pounds of tobacco, 1,800,000 bales of cotton.

No one knows how big a hole can be cut in these surpluses by the use of \$700,000,000 for sales made in foreign currencies.

Each transaction will be separate, governed by agreements between individual countries and the United States. But it is believed the sales will put a dent in government inventories.

Under the Act, known as Public Law 480, the government is by no means the leading performer in the operation. The star role falls to United States exporters and traders who carry out their work through regular private channels of trade. Traders will set the price in competition with farm commodity traders

from other exporting countries, and the sales will be made by them.

The government's role is to get the show on the road and to supply the best tools available for the American trader's sales kit. Sound merchandise tailored to the needs and tastes of the customer is the backbone of any selling job. If the product doesn't meet the customer's requirements there's no sense in going on with the sales talk. The Commodity Credit Corporation, which finances price support operations in the Department of Agriculture, can under its own authority prepare commodities for export under Public Law 480 by contracting for repackaging, transportation and other handling costs.

To date the Foreign Agricultural Service, which administers the Department of Agriculture's part in Public Law 480, has helped in the development of programs which may involve more than \$450,000,000.

Many and varied are the jobs that can be done in fitting our agricultural products to the tastes of foreigners. Among them is the repackaging of butter. The Commodity Credit Corporation buys butter for price support purposes in blocks weighing from 60 to 70 pounds. To meet foreign consumption demands these could be repackaged in one pound and one and a half pound prints. Nonfat dry milk, bought by the Commodity Credit Corporation in 150 to 200 pound barrels, could be repacked in four and a half pound containers for use abroad.

There is a foreign currency market in India, Pakistan, and the Far East for our butter providing we convert it into ghee. Ghee is made from butter by boiling it until it is comparatively free from moisture. It is more granular and lighter in color than American butter oil. Experiments are now being carried on by American industry to find ways of making American ghee so it is entirely satisfactory to the people of the Far East.

Another effort is under way to create a continuing market for United States farm products and at the same time narrow the dollar gap. This is a move to encourage the investment of American capital in industries in foreign lands that can use American farm commodities as raw materials.

A sample of this type of operation can take the form of plants turning out milk and ice cream made by recombining nonfat dry milk solids and butter oil with water. Five such factories are now furnishing milk to our Army in Japan and vicinity.

Such plants can be financed under Public Law 480 by money loaned to native investors who own and operate the plants. Or, if American private capital is invested in these factories it is possible for the investors to convert their native currency received in their operation into dollars. This can be done only in line with basic agreements drawn up in advance between the two governments concerned.

First reports of Public Law 480 brought objections in this country and abroad that the Act was designed to carry out a vast dumping program that would shatter world agricultural prices and otherwise disrupt, if not destroy, normal channels of trade.

However, the actual working of the Act proves the alarms unfounded. Consider the first agreement signed under the Act with a foreign nation—one with the Turkish government. In this agreement use of the commodity was limited to prevent damage to normal channels of trade. The facts were that Turkey, an exporting nation, suffered a poor wheat crop in 1954. The United States agreed to open surplus wheat for sale through regular trade channels. But the two nations agreed that Turkey could export none of the wheat with the exception of a small lot for which she had already made commitments.

There are a number of circumstances where the employment of our agricultural surplus trade policy, far from carrying a shadow of dumping, can become a boon to the peace of the free world. One such instance would be the use of our foreign currency program in free countries that are now buying farm products from iron curtain countries. We may be able to supply these countries at prices competitive with those of the slave countries and in no way affect the channels of trade of the free nations. By so doing we would not only cut off trade from the Soviet bloc but open up new markets for the free world.

Another instance where our surplus commodities may move into nations without disturbance to regular trade occurs in the case where one nation has been dependent upon another particular nation for its supply of a commodity. The supplying nation's source fails for one reason or another. The United States can step into the breach with supplies. Another case, too, is where nations are under rationing because of shortages of farm commodities we can fill in, and in amounts that will relieve the pressure of the im-

porting nation and at the same time not affect the free world market.

In fairness to other free nations the United States has so governed its program as not unduly to disrupt world markets. But this does not mean that the United States intends to sit back and wait until other countries of the world have disposed of their production before we enter the selling field. In other words, the United States intends to go all out for a rugged selling program and give its competitors a good fight for available markets.

W. G. Lodwick, Administrator, Foreign Agricultural Service, puts

the vigorous entrance of the United States into the world agricultural markets this way:

"It is difficult to see why our intention of sharing fully in world markets should be viewed as unreasonable.

"It seems only fair that the adjustment of world supply to world demand should require adjustment of production in other countries, as well as in the United States.

"And it seems only fair that the United States should not be forced to accumulate surpluses while other countries dispose of their entire production."—BEN JAMES

STEPS IN SALE OF SURPLUS

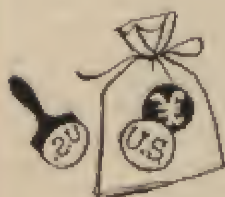


First step is drafting of over-all trade agreement between U. S. and importing nation. Treaty defines surplus products to be offered for sale and those to be exchanged; also stipulates rate of exchange to be paid in dollars for the foreign currency.

Agriculture Department then issues list of commodities to importing country and domestic suppliers. List describes kind and quantity of products offered for sale, specifies conditions of sale. U. S. exporters and foreign importers negotiate, with sales price expressed in U. S. dollars.



Next operation bridges "dollar gap." Foreign importer pays for commodity in his local currency, through local bank. This enables him to get around dollar shortage and deal with U. S. as he deals with non dollar bloc nations. Exporter is paid in dollars by American bank with which foreign bank has established letter of credit arrangements.



Final step: U. S. bank is reimbursed by Commodity Credit Corporation. Foreign currency which paid for transaction is deposited to account of our government in the foreign country. Money may be used to buy strategic materials, develop new agricultural markets, procure defense materials and services, promote international trade and development, pay U. S. obligations abroad, finance international educational exchange activities.



Man-made winter surrounds airman working with jet plane in the climatic hangar at Eglin Field

WORLD IS AIR FORCE

Air Proving Ground Command tests everything used by the airman—from the

TWO Sabre jets easing along 43,000 feet up in the Korean sky cut sharply left and bore down at full blower on ten Red Migs high-tailing it for the Yalu River.

Though still at extreme range, one Sabre jet pilot opened fire and saw his shell bursts wink and blink at him from the fuselage of the Mig he had chosen as his target. The Sabre jet pilot just had time to see the Mig start spinning, and the Red flyer take to his parachute, before he and his wing man had to dive to escape the attack of the victim's companions.

An observer on the ground might have thought he had seen just another in the series of hot aerial battles between Red Chinese and United Nations' airmen, but it was something more than that. It was a field test of the Air Force's new electrically fired, gas-operated cannon—a field test that achieved battlefield conditions by taking the test right to the battlefield.

The two pilots were U. S. Air Force Lieutenants Lonnie Moore and Harry Jones, members of a 25-man team which shot down six Migs,

probably destroyed three more and damaged 12 others, while they were testing the M-39 cannon to see if it was good enough to replace the old 50-caliber machine guns on the new supersonic jet fighters. Lieutenant (now Captain) Moore stayed on in Korea to shoot down nine more Migs and became a double jet ace.

During the test the team suffered no losses, but Maj. Ray Evans, who headed the test group, and his wing man, Lt. Col. George Jones, had their planes badly shot up one day by the Migs' heavy aerial artillery. They barely made it home to base. The test team flew with the Air Force's Fourth Fighter Interceptor Wing out of Seoul, and enlisted the aid of the pilots in the Fourth to help them try out the gun. Altogether, 26 pilots flew 300 missions in planes armed with the M-39. The cannon, incidentally, throws high explosive shells at a rate of more than 1,200 a minute.

"The Migs didn't always cooperate the way we would have liked," Major Evans says. "They had a habit of running away instead of offering themselves in the interests

of science. However, we were able to prove that the M-39 was just what the doctor ordered and today it's being installed on new supersonic jets like the F-100 and F-86H. The test enabled us to go into full scale production two or three years early and gave us a high-explosive weapon which we think is far better than anything an enemy might have."

The combat trial of the M-39 was perhaps the most realistic of the tests which the USAF's Air Proving Ground Command makes on new air weapons before it buys them in quantity. It tests everything used in combat—from a jet to the snap on an airman's shorts—and it functions on a global scale. Charles F. Kettering, General Motors research wizard, once called it industry's synthetic customer—a fussy, inquisitive marketer cautiously prodding a piece of merchandise before laying his money on the line. If a weapon has weak spots APGC wants to know about them before mass production begins because its primary mission in life is to hand the fighting forces weapons that will work—



Aerial view of hangar shows machinery (foreground) which produces any climatic condition desired

TEST TUBE

By PHILIP GUSTAFSON

latest jet fighter plane to the snap on his shorts

weapons that cannot fail to win battles.

"We're going to have to fight global wars with 137 wings," said Gen. Patrick W. Timberlake, Air Proving Ground Commander, "so this has to be a real M-Day force, ready to fight and able to win. We have to give them weapons that work the first try, and we have to see that the troops know how to operate them. So not only do we test things, we also test people. The weapon has got to be fit for the airmen and the airmen fit for the weapon."

The Command welcomes an opportunity to prove a weapon under actual battle conditions. It baptized the C-124 Globemaster in Korea, and the giant transport plane promptly distinguished itself by

Capt. Lonnie Moore, who downed 10 Migs over Korea, models anti-depressurization suit. Gear is worn during test flights, inflates automatically if cabin loses pressure, thus saving the pilot from death in case of sudden exposure to low pressures at high altitudes. In background: F-100 Super Sabre

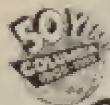


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evacuating 165 wounded men to Tokyo in one trip and carrying 35,000 pounds of hand grenades to a front-line airstrip the same day. In perhaps the most daring exploit of the helicopter corps, Maj. Brad Brown, project officer on the Sikorsky H-19, and Capt. Joe Cooper took their test chopper far behind enemy lines under fire and brought out for the first time the vital parts of a precious Mig-15 that had been downed in combat.

When there isn't a war going on, the Command tries out its weapons under conditions as close as possible to those they'll encounter in battle. It tortures electronic systems in temperatures as low as 65 degrees below zero and as high as 160 degrees above. It saturates flying suits in tropical humidities and impregnates boots with fungi. No ordeal is too diabolical. To save time and transportation, it creates some of these conditions in its fabulous Climatic Hangar, which turns a sunny Florida day into a raging snowstorm and recreates on short notice the weather to be found anywhere on the face of the globe.

In the end, however, most of the weapons are tested in all the far corners of the world. Bombers are tried out over the North Pole, trucks proved in the sands of Saudi Arabia and fighters are tested in Turkey, Morocco, or wherever unusual conditions are available.

At home, the Command puts bombers and fighters and guided missiles through grueling tests on 11 instrumented land ranges and a string of water ranges that run 175 miles out into the Gulf of Mexico and 75 miles along its shore. Tests cover precision bombing, dive bombing, air-to-air and air-to-ground rocket firing, and all the variations.

It takes a visitor a day or so to grasp how big the Command really is. An hour's flight over the wooded and bomb-pitted coastal wilderness that used to be the happy hunting ground of the Seminole Indians covers only a third of its holdings—almost 500,000 acres. Ten satellite airfields nestle within its vast confines, besides the huge strips at Eglin Air Force Base, the headquarters, which gives the proving ground the name by which it is commonly known. Besides APGC, Eglin also houses the Air Force Armament Center, one of the major test centers of the Air Research and Development Command.

When there is no war going on, the Command gets up battles of its own—mock battles, that is—and sometimes involves thousands of men and hundreds of aircraft in full-scale combat maneuvers. These



Eglin's commander, Gen. Patrick Timberlake, believes private industry should seize the initiative in developing air weapons

mock wars not only test weapons and pilots but ground support forces and equipment. The Command tries out its planes with new recruits and amateurs just out of flying school to see if they're GI-proof, but it also brings back the best of its veteran combat aces and the sharpest of its technical experts to work out weapons in fields they know best.

For example, Col. Paul Tibbetts, who dropped the first A-bomb, used to head up what is now the Air Force Operational Test Center. And when the top brass ran into a problem on a gunsight, they called in half a dozen jet aces who, between them, had shot down 40 Migs: Col. Francis Gabreski, Capt. Ivan Kincheloe, Lt. James Low, Col. Harrison Thyng, Maj. William Whisner, Jr., and Maj. James Jabara. They shot the problem down in a hurry.

This is the policy that brought Lt. Lonnie Moore to sit across the desk from wiry, active little Lt. Col. Henry Brown, an ace in World War II, who has 30 German planes to his credit.

Henry directs a team of 15 men—Lonnie is his assistant—charged with testing the hottest thing in the Air Force today, the new F-100 Super Sabre.

The F-100 goes so fast in level flight that it crashes the sonic barrier and becomes a problem child. It thrusts before it a shock wave that creates a sonic blow, like a clap of thunder on a clear day, and, unless flown cautiously, can scare the pants off the citizens and break the windows out of their houses.

Even without booms, the F-100 is just about the loudest thing that flies—so much so that North Ameri-

can Aviation, its maker, has taken full-page ads in national publications reminding the public of the plane's importance in national defense and promising that pilots will avoid populated areas whenever possible. During the Eglin tests, Col. Henry Brown and his boys have promised to take off over open areas and climb to 30,000 or so before they start booming around.

At that point, Henry is free to pull back the stick and ram the F-100 straight up into the air. He'll take her up as high as she will climb—probably higher than any other fully equipped fighter has ever gone before—up where the blood would boil and the body would explode without a pressure suit. Then he'll twist her into the tightest turn she'll take—peel off and dive straight down for the ground. Long before he reaches it, he'll pull out to see if the plane can stand the terrific G-forces required of a modern fighter. He hopes the wings won't come off and the chances are they won't for they're carved out of steel and the tips will flex 38 inches above and below center.

But Henry and his teammates do a great deal more than see if the plane will fly. They have to find out how it will do under all the combat conditions it is designed to meet. They attack real boats, real tanks and real aircraft—radar-directed drones. They try to break up the gear, burn out the gun barrels, and blow out the tires. They climb up to where the air is thin and test the pressure suits—along with other personal equipment. They give the aircraft a tough time because they have to make a report on its maximum capabilities.

"Sometimes the tests are so tough that they knock us out instead of the plane," said Henry. "One Sabre came in so low on a gunnery test that it caught a bullet on the ricochet that knocked the plane out of control. The pilot made a fast belly landing and lived—but just barely. Another one of our boys was coming in at 500 knots 50 feet off the ground to drop napalm bombs in singles. When he dropped the left one, the plane pitched sideways and then porpoised with such violence that it broke the pilot's back."

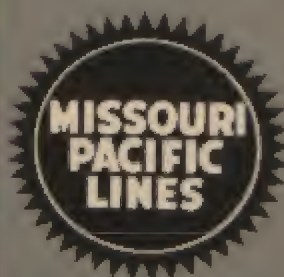
But even more than the plane, its performance and the personal equipment of the pilots, the Air Proving Ground Command tests the aircraft as part of a weapons system. It rates the ground crews to make sure their training is adequate and sizes up the ground equipment.

"For example," Henry said, "the F-100 lands so fast that you have to use a drag parachute to slow her

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"Draw me a picture of the Chamber of Commerce of the United States," a businessman told us.

"I want to find out something about your organization."

"What would you like to know?" we asked him.

"How *big* is the Chamber? How many people do you have on your staff?"

"Eight hundred and fifty—360 in the Washington office; and 490 outside of Washington—in our six division offices, in our 18 district operational centers and working in the field."

"How many members does the Chamber have?"

"More than 3,100 Organization Members—local and state chambers of commerce and trade associations; and more than 20,000 Business Members—firms and individual businessmen."

We also gave him a few other facts . . .

"The Chamber maintains 21 departments in its Washington office—13 dealing with national problems affecting business; three to give service to organizations; and five to handle such things as legislative activities, publishing, information, membership service.

"The Chamber issues 18 regular publications, including *Nation's Business*, largest business magazine in the country; *Washington Report*, weekly newspaper; and *Legislative Daily*, thumbnail review of Congressional action."

CHAMBER OF COMMERCE OF

A NATIONAL FEDERATION WORKING FOR



Then, he wanted to know something else.

"What does the Chamber do?" he asked. "What is its *purpose*? Does it duplicate the work of any other organization?"

"The National Chamber does not duplicate the work of any other organization.

"The National Chamber is the only organization of its kind.

"It is the national voice of all business, large and small, in every part of the country.

"Its purpose is to make known the views of business on national issues—and to *get action* on the recommendations of business toward the solution of national problems.

"As part of its work, the Chamber makes a number of worth-while services available to its members—information about legislative developments, information about economic trends, assistance on community improvement, practical help on a myriad of things pertaining to business.

"*But*, the Chamber's main purpose is to provide the organizational means by which the business men of the country can *work together*—and make their views, opinions, thought and judgment count in national affairs."

* * *

For a more complete picture, write for a copy of our progress report, "Achievements and Aims."

The Work of the National Chamber

THROUGH the Chamber of Commerce of the United States, business has assumed its full share of responsibility for keeping America strong, prosperous and free.

The aims of business and the basic points of the Chamber's current program are these:

1. **Improve Living Standards**—Expand production, develop new markets, provide more jobs, keep the economy dynamic.
2. **National Security**—Encourage an enlightened foreign policy, expand world trade, and strengthen all phases of national security.
3. **Community Development**—Build better cities and communities.
4. **Economy and Taxes**—Promote government economy, and devise a better tax system.
5. **Labor Relations**—Create greater harmony between labor and management, America's productive team.
6. **Education**—Raise the educational levels of youth and adults, and also build a better public understanding of the American economic system.
7. **Organization Work**—Make increasingly more effective America's business organizations which are federated and working together for good citizenship, good government and good business.

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down after she hits the runway. The heat from the engine is so intense that we have to make the tail of titanium. Then what do they do but stick a nylon drag-chute in this hot titanium tail. We land the aircraft; no chute. We go back and open the door and what comes out? Ashes."

Luckily, this one was caught in time for the manufacturer to devise a means of insulating and cooling the tail container at an early stage of production. Henry got a similar break when he tested the F-84G.

"As soon as we put the A-4 gun-sight on the 84G," he said, "we found that they'd fastened the sight on the same spar as the guns themselves. Of course that vibrated the sight so you couldn't shoot. We reported a 'not operationally suitable' and company representatives came

the manufacturer and a fix is started immediately. A whole series of such fixes may go on during an operational suitability test, which can run a couple of years. Changes are speedily coordinated at the test center since each test team is composed of representatives from the Air Training Command, responsible for training improvements; the Tactical Air Command, tactical applications; the Air Materiel Command, equipment changes, plus the technical representatives of all the contractors and subcontractors.

By instituting such changes before the weapon gets into large mass production, the test center saves the taxpayers millions of dollars in expensive programs for modification. Furthermore, it telescopes time in producing weapons and in the end turns out products that the troops



Portable "igloo" protects aviation mechanics working on aircraft in frigid temperatures of climatic hangar

swarming in from every direction to fix it."

Henry and one of his helpers personally fixed up a defect in the support equipment for F-86F and saved an estimated \$100,000. To make it more competitive with the Migs, the F-86F had been modified till its actual dimensions had changed and the standard bomb-loading equipment was no longer suitable for the 1,000 pound bombs and fire bombs that it carried. Not only were test-runs stymied but squadrons out in Korea began screaming that they couldn't get bombs on their planes. Henry and Tech. Sgt. Lem Hair pitched in on the spot and sweated out a modification that made the bomb-lift truck work like a charm. Drawings were submitted to Wright-Patterson Air Force Base, 800 modified trucks were whipped out and Henry and Sergeant Hair received commendation medals.

Ordinarily, when a bug is discovered, a flash report is wired to

can use from the moment of delivery. The operational suitability test eliminates such bugs as the one that suddenly bobbed up when the B-24 came to combat in World War II. The big plane had no forward-firing protection and thus was a sitting duck for a head-on pass by a fighter. For months on end, whole fleets of these badly-needed planes sat idle in modification centers while a forward turret was added.

Eglin works two and a half to three years ahead of operational use and sometimes an operational suitability test incorporating a whole series of fixes actually turns out to be a developmental program. Such was the case in the test of our all-weather fighters—F-94C Starfire, F-86D Sabre and F-89D Scorpion—which coincided with a national emergency as we learned that the Russians had an A-bomb and jet bombers to carry it here.

"With these all-weather fighters, we had to make a major change in concept to allow for the collision-

course fire control system which locks on the target and fires from any angle," said Col. Walter B. Putnam, head of the Air Force Operational Test Center, which runs all the actual tests. "It all began the day we fired at four drones from a 90-degree angle with a small number of inert rockets, hit three times and killed two. From then on, everything was different.

"The old World War II pursuit curve was out. In pursuit curve fighting, the fighter would attack his target from a 30-degree angle off either side of the tail; thus it was most effective to fire from a cone 60 degrees in arc. Attacks were restricted to machine guns. Now our all-weather interceptors fire on a collision course with radar lock-on and let loose automatically with a shotgun pattern of rockets. At 90 degrees and 400-mile-an-hour speeds, you have to take a fantastic lead on the target. This a man can't do accurately. But a computer does it beautifully.

"The collision-course system has been adapted to firing 24 to 104 rockets in salvo. The F-89D carries 104 and when the pilot comes to the point of fire, he has already been positioned in space by those magic little black boxes. Then the trigger is pulled automatically and he breaks off above or below the target—which by all counts should be exploding merrily by the time he gets in the clear.

"Before we got through," said Colonel Putnam, "we had to revamp the airframes to allow for the radar-fired rockets and the new armament system. We had to redesign the rockets. We had to make radical changes in operating, maintenance and training procedures, as well as hangar concepts.

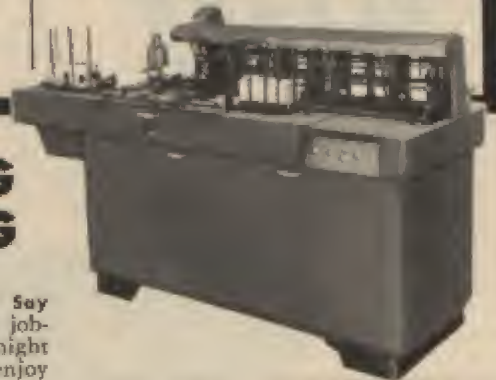
"But such things are only a beginning," he went on. "We not only put together these killers but we also help develop the tactics they will use in battle by putting them through their paces in a simulated combat environment. To take an example from another field, we're testing new techniques for the use of fighter-bombers in night tactical operations with ground troops. This stems from what happened in Korea. We had enemy logistics interdicted in the daytime but the enemy kept moving his stuff at night. We have to find a way to stop this. We think we can do it with new and secret equipment and we are finding out how to use it by staging huge mock battles on the ground. We are using live targets and film evaluation, working with the Tactical Air Command on air operations procedures, with the Army on movement of ground per-

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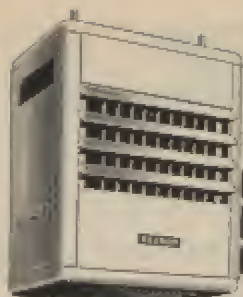
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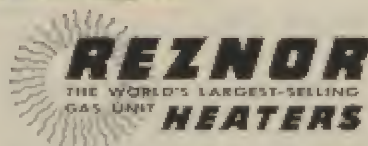
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sonnel and equipment, with the Air Training Command on troop instruction, with the Aero-Medical Lab on psychological and medical problems and with the Air Materiel Command on the development of new lighting equipment."

Not only does APGC test the plane, the personnel and the tactics, but it may even test the air base from which the plane operates. For example, at Loring Air Force Base, in northern Maine, the Command has been trying out a hydrant refueling system as opposed to the current concept of using fuel trucks. This test will actually redesign the airdrome itself to increase speed and efficiency and insure sufficient dispersal to keep an enemy from knocking it out.

The Air Proving Ground Command might be called an advance air force. At any given moment it has kicking around the grounds enough advance equipment to fight a minor war and its ranks contain elements of all major Air Force commands—the specialists sent in to try out the items they know the best. All tests are run by what is known as the Air Force Operational Test Center, headed by Colonel Putnam, and composed of five divisions corresponding to major Air Force commands.

The Tactical Air Division, headed by Col. Bob Elder, where Henry Brown works, tests fighters, light combat and reconnaissance bombers, guided missiles, helicopters and troop transports. The division has under test the F-100; the F-86H, newest and fastest of the Sabre series; the F-84F Thunderstreak, fighter-bomber, and the F-84F reconnaissance version; the RB-57, reconnaissance version of the British Canberra, which recently broke the speed record over the Atlantic; the H-19B, eight-passenger Sikorsky helicopter; the H-21 Piasecki 20-passenger helicopter and the C-124, the huge freighter transport, which carries more than 100 men.

The Strategic Air Division, headed by Col. Joe Briley, tests the big bombers operated by the Strategic Air Command, charged with atom bomb retaliation if Russia starts any big fuss. It is now preparing to try out the gigantic intercontinental B-52. Colonel Briley's men have recently been rehearsing the refueling techniques which could allow the big jet B-47 to fly around the world without landing.

Lt. Col. Walter Stewart, who made one of the B-47 global runs, started out from Alaska, refueled over the North Pole and came back by way of Texas. He carried a training atomic weapon and made a simu-

lated bombing run on major industrial areas during the flight. He also penetrated air defenses (ours) and otherwise carried out all the elements of a real mission. He said the weakest link in the chain was Stewart; he was so tired when he got back that he couldn't get out of his seat. But his most bothersome problems in the air came up on top of the world while he took on fuel from a tanker.

"The midnight sun up there was so low it got in our eyes so we had to turn around and fly the other way all the time the tanker was with us," he said. "And that North Magnetic Pole is the damndest place in the world to navigate; every way you turn is south."

Briley's people went out over the ocean in a B-47 and had a big air battle with a fighter making regular combat passes. The fighter was a radio-controlled drone from the 3205th Drone group at Eglin, which supplies B-17's and F-80's for real and camera gunnery tests. Colonel Briley says the 47 took care of itself very nicely. His 47 crews had a picnic fighting off the Mig-15 brought back by No Kum Sok, the North Korean pilot who collected a \$100,000 reward for the ship.

"We got a lot of fun out of that Mig," Colonel Briley told me. "It was well worth the price we paid."

The Air Defense Division deals



In-flight refueling of an F-84G Thunderjet over the Pacific—as seen from boom operator's position in refueling plane

with the Air Defense Command, charged with defending the United States against enemy air attack. The Air Defense Command's chief weapons are those three all-weather fighters—F-94C Starfire, F-86D Sabre and F-89D Scorpion—which hunt down enemy bombers on radar. They are based at strategic points about the country, close by control stations which use their powerful radar sets to detect and track down enemy planes. Then highly-trained controllers vector the fighters up where they can lock on with their own radar and shoot the attackers

down with powerful rocket salvos.

"We recently drew up and monitored tests, collected statistics and evaluated the operation of the Air Defense Command itself," I was told by Brig. Gen. Daniel S. Campbell, Deputy Director of the Air Proving Ground Command. "We pointed out deficiencies in pilot training. We reported on planes that didn't start. We analyzed failures in tactics. These ADC tests will greatly increase the capabilities of the Air Force to protect the United States against air attack."

These field trials illustrate the fact that practically no test is too big for APGC to run. Trying out all three types of fighters at different air bases, this project involved thousands of personnel and hundreds of aircraft. There were six different D-days in which B-29's, B-50's, B-36's, and B-47's roared in on industrial targets against squadrons of the all-weather fighters.

In APGC's other two divisions—Electronics and Support Services—gadgets are often tested which benefit civilians directly. One of these is "The Poor Man's GCA," an inexpensive radar approach system to guide planes into airports in pea soup, now undergoing quantity tests. Developed by the Laboratory for Electronics, a private company, to operate with one operator instead of three and sell for \$35,000 instead of \$250,000, it promises to bring civilian pilots into small airports in weather that grounds them today.

After aircraft and equipment are put through their paces by AFOTC in the temperate and usually sunny climate of Florida, they are next subjected to diabolical punishment in the most barbarous weather conditions nature and man can devise. In Eglin's unique climatic hangar, man does about everything with the weather that nature can do—on a smaller scale, of course. There is a cold room, a hot room, a desert room, a jungle room, a tropic-marine room, an all-weather room and even a refrigerated strato-chamber which creates snow, rain, hail, hurricanes, sandstorms and everything short of brimstone.

But the center ring in this weather circus is a gigantic test chamber 75 feet high and 200 by 250 feet in perimeter—big enough to accommodate a B-36. In order to admit such monsters, they've turned one whole wall into a double door, a door so huge that each half weighs more than 200 tons, and moves back and forth on standard railway trucks.

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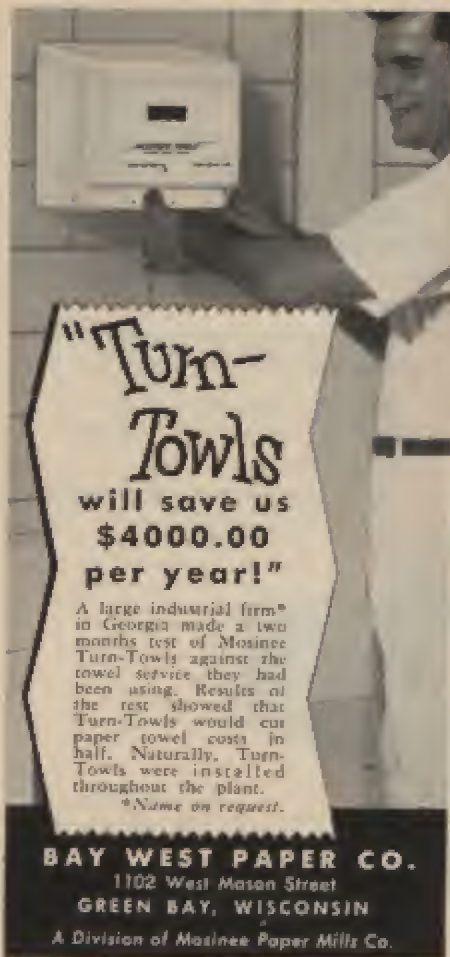
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ranges that extend for miles into the gulf. Bombs can be dropped on sand-floored pits, road tests can be run and take-offs simulated at all extremes of temperature.

When a suitability test has been completed, data is tabulated, coordinated and analyzed by Air Force officers and by civilians who act as advisers to the project directors and the heads of all Command branches—some of them long-haired geniuses with a string of letters after their names. Then officers and civilians write a final report—often an inch or two thick. In this, the weapon is graded as "standard" if it suits the purpose intended, "limited standard" if it can be used pending better designs, or "obsolete" if it fails entirely to meet the standards that are set for it.

At Eglin, this department card winds up in the office of General Timberlake. As head of a top command—one of the 17 in the Air Force—he reports directly to Gen. Nathan F. Twining, Air Force Chief of Staff.

"Our position is unique," General Timberlake told me. "Suppose I were in the development command or some similar organization—as tests are in the other services—and suppose I kept turning thumbs down on my boss's pet gadgets. I wouldn't last long, would I? Here we call them the way we see them. Nobody marks his own paper."

This state of independence, however, doesn't make General Timberlake uncooperative. He makes his testing facilities available to other services and to hundreds of Air Force contractors. Representatives of the using commands are invited to participate in all major tests. And, though the general is industry's toughest customer, he is also industry's best friend.

He believes that when better weapons are built private industry will build them.

"One trouble with us," he said, "is that we always seem to go into a war with an old weapon. Then we have to overtake an enemy who starts out with a brand new one. For example, many of our air ordnance weapons are developed within the service as ground weapons. I say this is wrong. I'd like to see us start with an air weapon then build the plane around it. And I'd like to see the weapon developed on private industry's initiative—the way our planes are developed today."

He admits that the M-39 cannon is something of an exception, though it was originally developed by the Germans, and he believes that the M-39, in combination with the F-100, should let us go into another

war, if it comes, with a long lead over the Migs.

Regardless of this lag in armament development, the general and other authorities in the Air Force are proud of the new proving system they've set up since World War II. They say it allows quick coordination of training, material and tactics, provides a straight line of authority that speeds weapons from factory to battleground and cuts down the long lead time needed to get new weapons into service. Errors and delays in getting out these weapons, General Timberlake pointed out, can cost lives, billions of dollars and can even jeopardize our national security.

As I talked with General Timberlake, I thought of another interview, held by the flickering light of an oil lamp in a dim cubbyhole of an office at what had been the Wright Field of the Japanese naval air force. It was only a few days after the occupation of Tokyo and I had asked Vice Admiral Rikizo Tada, a thin-faced, scholarly scientist type in charge of developing Japan's naval



aircraft, to tell me where Japan had made mistakes that led to her defeat.

"Japan delayed too long in making a decision to replace the vulnerable Zero-type fighter," he said. "When the high command decided to bring out a plane that could compete with your new Hellcat, it was too late. We ran into design and production troubles. Then material shortages. In the end, we couldn't get the new fighters out in quantity. This is one of the big reasons why Japan lost air superiority in the great naval battles and eventually lost the war."

Admiral Tada blamed the delay on bad planning in the war production board, which had finally been formed in the last days to coordinate the confused picture of army and navy manufacturing, on the lack of coordination between commands and on lack of authority in the hands of men who understood combat, production and engineering problems.

The Air Proving Ground Command is there to see that it doesn't happen to us.

END

Uncle Sam Buys Buildings on Instalments

(Continued from page 33)

Last July, when the Senate was debating the lease-purchase bill, many senators argued that it would weaken congressional control over the purse strings—that if the executive branch wanted to put up a building, it should ask Congress for an appropriation to pay for it. Senator Byrd of Virginia charged that the new scheme was designed "to take from Congress the control of the appropriations for public buildings."

Mr. Byrd also asserted that at the end of the lease-purchase contracts the government would find itself owning antiquated buildings, and warned that the way was being opened for scandals like those which have plagued the Federal Housing Agency. "I think the bill would be a builders' bonanza, or could be made so," he declared. "It also could be made a political pork barrel."

Other opponents argued that the scheme seemed to contemplate continued expansion of federal activities, rather than hoped-for restriction; that it would saddle future administrations with unpaid bills, and that it would erode still further the tax base of state and local governments.

This last criticism came chiefly from the American Municipal Association and the National Association of Real Estate Boards. They based it on the fact that when the government takes title to a building at the end of the lease-purchase period, the property no longer is subject to state and local taxes, whereas property rented by the government remains taxable.

Finally, opponents charged the extra cost of lease-purchase, as compared to government construction, would be excessive—Senator Magnuson of Washington estimated the cost would more than double. These critics foresaw huge returns for those financing lease-purchase buildings, saying that although no risk is involved, the interest rate might be as high as 5½ per cent.

Mr. Strobel and GSA boss Edmund F. Mansure say GSA is shooting for an interest rate of three to four per cent on lease-purchase financing. Mr. Strobel declares flatly that "if we don't get a rate of four per cent or less, the project won't be built." They concede that even at low rates the instalment plan

buildings will cost more over the long run than buildings constructed by the government, but emphasize again the fact that lease-purchase buildings do not involve larger appropriations right now when the Administration is trying to balance the budget. And, they say, there can be no doubt that lease-purchase will be more economical for the government than straight rental. In many cases, the lease-purchase payments are expected to be actually less than the yearly rent on a comparable building, and at the end of the contract period, the government will own the building.

To opponents who worry over the eventual loss of tax revenue to state and local governments, Mr. Strobel points out that some agencies already make payments in lieu of taxes on federally owned buildings and that the Administration is trying to devise a uniform policy in this field. There is a strong possibility that such a policy will be in effect by the time the first lease-purchase building becomes government property and therefore moves off local tax rolls.

One by-product of the new program seems likely to bring about lower construction costs on all public buildings. An advisory committee of private architects, engineers and contractors has been appointed to determine whether the government "overbuilds"—that is, insists on costly and inefficient specifications in plans for new government buildings.

This study is a direct result of Budget Bureau complaints that original cost estimates were too high on many of the 35 proposed lease-purchase projects. Some of these estimates already have been cut, and others will be.

As the time for the actual letting of lease-purchase contracts draws near, GSA is getting a flood of mail from architects, engineers, civic groups, contractors, investors of all types and realty firms eager to know more about the program. Officials take this as a hopeful sign that when the time comes for bids, there will be keen competition both on construction and in financing. Such competition, they feel, will hold down the costs and help prove that the program is an intelligent middle ground between the traditional methods of government construction and rental.

END

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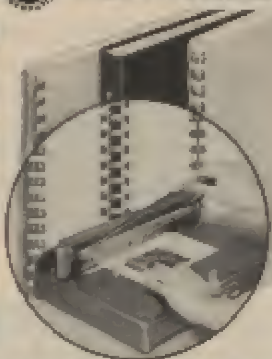
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CREATORS OF AN INDUSTRY

Train Your Own Inventors

(Continued from page 30)

veloped by exercises, Mr. Osborn believes, just as the ability to do mental arithmetic can be increased by practice. The trick, however, is to suspend the judicial part of the mind while the creative part is at work; too often the judgment will inhibit the free flow of original ideas. Some of Mr. Osborn's limbering-up exercises seem ridiculous until their serious intent is examined.

In class, for example, he will hold up a screw driver. "How can this be improved?" he will say.

Similarly, he will pose his classes such problems as:

Suggest six ways in which old razor blades might be used.

Invent a toy to amuse children under ten.

What if you were asked to give the sermon at your church next week? What topic would you select?

Mr. Osborn encourages his students to "brainstorm"—that is, to rain out ideas in torrents. The fact that only a few may be good means nothing.

"The important thing," he says, "is they're learning to let themselves and their imaginations go."

Mr. Osborn's principles may be summarized briefly. First, he believes in *effort* to create: concentration, observation, perseverance. Second, he sets store by devices to stimulate imagination: making notes of idea fragments, setting a deadline for ideas, and actually setting up a schedule for creative thought. Third, he believes in extensive self-interrogation: asking one's self every possible question about the subject under consideration.

His steps for creative thought are:

1. Approach creative thinking systematically by setting a definite time.
2. Suspend critical judgment; don't discard ideas because they've never been tried before or because they may seem impractical.
3. Get your aim clearly in mind; focus your thoughts.
4. Analyze each problem; ask *why* so-and-so happens, when it happens, what causes it.
5. With the facts at hand, and the time, let the brain run wild; Use self-interrogation.

Questions that can be asked during this period include: How can this idea be improved? Modified?

Explained? What can be taken from it to make it more effective? What can be substituted? What else can be used with it? Would reversing it improve it?

Far-fetched and vague though these principles may sound, they get results. At Mr. Osborn's instigation the University of Buffalo set up classes in creativity in 1948. Columbia, Drake, and Northwestern universities scheduled classes in the autumn of 1954, and the Air Force R.O.T.C. has incorporated a course in its regular training program.

Mr. Osborn contends that the principles may be applied to all aspects of any individual's personal and vocational life, and that any business or industrial organization can use them effectively.

Mr. Osborn has established a Creative Education Foundation in Buffalo to carry on his work. It is nonprofit, and has thus far been supported mainly by the royalties from his book. The address is 1614 Rand Building, Buffalo 3. Inquiries are invited, and are coming in at



the rate of 150 per day. Mr. Osborn believes that by next year scores of universities and companies will have established courses.

Mr. Osborn is happy about this expansion, naturally, but he is happier yet over some conclusions arrived at scientifically in a federally financed study of creativity which has been going on at the University of Southern California during the past four years. In a summary of findings, the director of the study, Dr. J. P. Guilford, said:

"Like most behavior, creativity probably represents to some extent many learned skills. Heredity may set limitations on these skills, but I am convinced that, through learning, one can extend the skills within these limitations. The least we can do is remove the blocks that are often in the way."

Mr. Osborn himself says, "We need new ideas to win wars. And we need even more and better new ideas to win peace."

END



notebook

Guiding government workers

ONE of the most influential people in Washington is a man named Jerry Kluttz. You have probably never heard of him, but his name is well known to the 260,000 civilians who work in government offices in and around the nation's capital.

Here's the reason for Mr. Kluttz's popularity: For the past 15 years he has been the editor of a daily newspaper column aimed directly at the federal employee. He is, in fact, the senior practitioner in this specialized field of Washington journalism.

In addition to the column (which he writes for *The Washington Post and Times Herald*) Mr. Kluttz also edits "The Federal Employee Newsletter," a mailing piece which reaches government personnel in all parts of this country and at posts overseas.

A further example of the kind of work which Mr. Kluttz does is the article he wrote for this issue of *NATION'S BUSINESS* in partnership with his wife, Electa.

"If it hadn't been for Letty," he confesses, "I wouldn't have become interested in the work of the electronic scientists. She nudged and then shoved me into it."

"It was Letty who first heard about some of the amazing accomplishments of these scientists in reducing the government's paperwork and records. She bubbled with enthusiasm over it. I then told her to go after the story herself. She did. Later, when I saw some of the facts she had gathered, I shared her enthusiasm."

By the way, the electronic tube in our cover design is a faithful drawing of one of the 1,300 tubes that power SEAC, a superbrain described in the article by the Kluttzes.

Glamourized phone booths

THE success of the outdoor telephone booth has left telephone company officials pleasantly befuddled.

Outdoor booths were first installed as an emergency facility in World War II's hastily built defense plant towns. They moseyed

along in the immediate postwar era and then, about 1952, began a steady climb to their present position as one of the industry's best money-makers.

The Bell System alone reported more than 60,000 outdoor booths in operation at the end of 1954. At the close of 1952 it listed only 34,000. In recent months you may have noticed new outdoor booths in areas adjoining service stations, supermarkets, at important bus and streetcar transfer points and at intervals along toll highways.

Telephone men have found that outdoor booths do not cut into the business done by pay telephones installed in such establishments as service stations.

In fact, the inside booth usually gets just as much business as before while the outdoor booth is doing even better!

"This proves," says one Bell spokesman, "that outdoor booths generate *new* business."

In most localities the outdoor booths are painted to harmonize with their surroundings. Bright colors are popular. The booths are well lighted at night to attract passing pedestrians and motorists. According to industry leaders, the outdoor booth is a successful stimulator of impulse buying in both hot and cold climates.

Welcome—Kentucky style

BUSINESS and professional newcomers to Louisville, Ky., have a treat in store for them.

Three times a year the Louisville Chamber of Commerce stages a "Welcome Breakfast" for new arrivals. At a typical breakfast a feminine member of the chamber staff pins a red carnation on the lapel of each guest. Breakfast itself consists of bacon and scrambled eggs, grits, rolls and coffee.

After breakfast chamber of commerce information sheets on the city are distributed to the guests, along with such "extras" as bottles of Kentucky bourbon (gifts from local distillers) and food and clothing processed in Louisville. Then come introductions to the several hun-


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CHARACTER: George Washington may or may not have hacked down the family cherry tree and promptly confessed the deed. Anyway, legend has it so — and the tale's been a shining example to erring small fry for some two hundred years. But shaping young minds cannot be accomplished by inspiration alone. It takes a bit of doing on the older generation's part. That's why the Chamber of Commerce goes all-out for any project that helps mold upstanding, self-reliant kids. Better schools, for example — or boy's



clubs and youth centers, Scout troops and little league baseball. Character building is a man-size chore, but the Chamber's out to do all it can for under-privileged children. And who knows, maybe one of 'em could even wind up in the White House. After all, didn't George make it?

Pete Progress

Pete Progress speaks for your Chamber of Commerce, an organization dedicated to making your community a safer, healthier, pleasanter place to live and work. Support it!

dred chamber members assembled for the occasion.

Last fall's breakfast had an unusual setting: Churchill Downs, scene of the Kentucky Derby. There the newcomers and chamber men breakfasted with jockeys riding in the fall meet and got a first-hand look at one of Louisville's most famous attractions.

Movies speak for business

IF you are contemplating the use of motion pictures to tell the story of your business to the public you will be interested in a few facts gleaned from a book published recently by the Association of National Advertisers, Inc.

The book is entitled "The Dollars and Sense of Business Films." It tells what it cost 67 leading companies to make and circulate 157 business films. Some key findings: Total over-all cost of the films averaged \$87,264. Ninety-five per cent of the films were made for 16 mm projection; 78 per cent were produced in color, and 99.4 per cent were released in sound.

Factors in the total over-all cost break down as follows: production, 55.3 per cent; prints, 26.3 per cent; and distribution, 18.4 per cent.

The potential audience for such films is huge. An estimated 86,600,000 viewers have already seen 46 of the films covered in the ANA survey. Another pertinent statistic: Approximately 500,000 16 mm sound projectors are now available in the United States.

Tip for traveling men

A BUSINESSMAN in the Midwest who travels extensively has devised a sure-fire system for overcoming the difficulties which sometimes arise when he tries to cash personal checks in places where he is not well known.

First he bought a long wallet that folds in the middle and fits into the side coat pocket. Then, from his company, his banker and his minister he secured letters of identification. Next stop was a photo studio, where he had the letters reproduced in a size that would fit into the wallet. He also had his picture taken and sealed a print of this in the wallet under a transparent plastic shield.

If a banker is still dubious, the man produces a small ink pad, about the size of a special delivery stamp, and offers to use it in marking his thumb print on the check at the time it is cashed.

"Bankers smile at all this super security," relates the businessman, "but they love it."

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WORKERS' RIGHTS

VS.

UNION RIGHTS

SO-CALLED "right-to-work" bills will come before a good many state legislatures this year.

This outlook is wringing protesting screams from labor leaders who see this type of law as "the modern attempt to eliminate labor unions." They maintain that right-to-work laws are wrong morally and economically and may well be an invitation to disaster of the general welfare.

Since, in essence, the right-to-work laws merely affirm the principle that a worker has the right to join a union, or not to join a union, as he sees fit, it is difficult to see how they can cause such upheaval as the labor leaders predict. In fact, 17 states already have such laws with no untoward results to morals, economics or general welfare.

Which raises the question: Is organized labor's concern over possible passage of right-to-work laws an admission of its own failures?

Certainly if union membership is the boon that leaders insist it is, then working men should find it appealing with no compulsion either from law or from goon squads.

The fact that only some 16,000,000 of the nation's 64,000,000 working people are union members suggests that the majority are not convinced that union membership is a bargain. Now the leaders' complaint that, without compulsory membership, the union

movement will be sabotaged appears to be an admission that, even among the 16,000,000 union members, there are many who would not be there except that the law permits contracts which say they must.

Labor leaders insist that unless union membership is compulsory many workers will seize the opportunity to enjoy the fruits of collective bargaining without carrying any of the burden. Which seems to be a way of saying that, in the opinion of their leaders, union members are a bunch of cheap free-loaders who wouldn't pay for anything they could steal.

A good many other organizations could tell the union chiefs that this view is unjustified.

Working people provide a large part of the support of churches, lodges, veterans organizations—to name only a few—without compulsion of any kind except that which comes from within them.

Apparently unions have not—or fear they have not—inspired this inner compulsion. That's too bad. Because many unions have contributed much to their members' benefit.

Perhaps those particular unions are not alarmed over the right-to-work laws. Perhaps they know that they have the respect of their members as well as of the employers with whom they deal.

If not, the place to win maintenance of membership is in members' minds—not in the legislature.

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